REPORT RESUMES

ED 013 022

FL 000 347

SOME EFFECTS OF TEACHING FOREIGN LANGUAGE IN THE ELEMENTARY SCHOOLS.

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PUB DATE DEC 62

EDRS PRICE MF-$0.50 HC-$3.16 79P.

DESCRIPTORS- *ACADEMIC ACHIEVEMENT, *ANALYSIS OF VARIANCE, *EXPERIMENTAL GROUPS, *FLES, *LANGUAGE RESEARCH, AUDIOLINGUAL METHODS, ACADEMIC PERFORMANCE, COMPARATIVE ANALYSIS, INTELLIGENCE LEVEL, SECOND LANGUAGE LEARNING, INDIVIDUAL DIFFERENCES, STATISTICAL DATA, HICKSVILLE PUBLIC SCHOOLS, NEW YORK,

THE POSSIBLE EFFECTS OF FLES UPON STUDENT ACHIEVEMENT IN OTHER SUBJECT AREAS WAS THE BASIC PROBLEM OF A STUDY IN THE HICKSVILLE, N.Y. PUBLIC SCHOOLS. FOLLOWING A SURVEY OF LITERATURE ON THE PROS AND CONS OF FLES PROGRAMS, THE REPORT CONSIDERS THE PERFORMANCE OF THE EXPERIMENTAL GROUP, WITH CONTINUOUS FLES INSTRUCTION STARTING IN THE FIRST GRADE, AND THAT OF THE CONTROL GROUP, MADE UP OF STUDENTS ENTERING THE SCHOOL SYSTEM AFTER THE FIRST GRADE. THE DATA, WHICH SUGGESTS THAT THE EFFECTS OF FLES ARE POSITIVE, COVER TEACHER GRADES IN READING, LANGUAGE ARTS, ARITHMETIC, CITIZENSHIP EDUCATION, AND SCIENCE, AS WELL AS ACHIEVEMENT SCORES IN READING VOCABULARY, READING COMPREHENSION, ARITHMETIC REASONING, ARITHMETIC FUNDAMENTALS, MECHANICS OF ENGLISH, AND SPELLING. ANALYSIS OF THE FINDINGS CONSIDERS THE I.Q. AND DISTINGUISHES BETWEEN THE PERFORMANCE OF MALES AND FEMALES. FIFTY-FOUR PAGES OF STATISTICAL TABLES REINFORCING THE RESEARCH PRECEDE A BIBLIOGRAPHY. (GJ)

ED013022

"SOME EFFECTS OF TEACHING FOREIGN LANGUAGE IN THE ELEMENTARY SCHOOLS*"

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* This study was supported in part by the Division of Research, State Education Department, Albany, New York.

DECEMBER 1962

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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INTRODUCTION

Foreign language training in our elementary schools has reached tremendous proportions since World War II. In many schools throughout the country, FLES programs have been introduced into the school programs in every school year from K - 6th grade. The number of such programs has continued to grow until it appears that in many cities, early initiation into foreign language study is now taken for granted, and has become as much a part of the curriculum as the more traditional subjects.

REVIEW OF LITERATURE

Many voices have been raised in praise of such programs, while some have been attacking them. Marshall, Kays, Ford and Negronida (1960) feel that there are too many disadvantages to a FLES program and the disadvantages outweigh the advantages. They feel that foreign language training (to be effective) should not be for a short time each day. Further, it is maintained that there is not time for longer classes. They claim that foreign language study takes up valuable time which should be given to other work. The difficulty of obtaining well qualified teachers is also stressed as a problem.

Hoppock (1957) believes that bilingualism in young children retards the proper learning of the mother tongue. Older children, she claims, learn more rapidly than young ones. At present, it is difficult to give a starting age for foreign language training because there is little or no research upon which to base a conclusion. Hoppock maintains that since most people use foreign language when they are adults, the time to study it should be near adulthood. She states that it is far too expensive to train children, especially in light of the returns it brings. In another article (1957), Hoppock claims that while children may have learned some elements of a foreign language, no research shows that the child can communicate in the language with a foreign speaking person.

Another point of dissention against FLES program is raised by Hughes (1963). He basically does not accept the idea that there is a need for proficiency in any language other than English. If foreign languages are taught, he claims that other basic skills in the curriculum will be neglected. He feels that'foreign language is a subject to be learned and graded, and that most high school texts are based upon a grammar approach instead of a conversational one.

In what seems to be a point with which there is no argument (if taken literally and narrowly) Adams and Bolton (1956) claim that learning a foreign language does not necessarily make people feel kindly toward other nations, and they do not support the idea of FLES programs.

In spite of such dissenting opinions, FLES has gained wide popularity and has received support for many reasons. One of the early influential voices which supported such programs was that of State Commissioner of Education McGrath, who stated in 1952 (Eaton,1957) that "Educators from elementary school to top levels of university systems ought to give immediate attention to the importance of early introduction to foreign language study in our educational system". He added (McGrath, 1953) that "some experiences which I have had as U.S. Commissioner of Education have led me to feel particularly that the American schools can make a further contribution to winning the peace by the early teaching of foreign languages.

Arguments in favor of foreign language in the elementary school which are broadest in significance are those which see social implications in the necessity for teaching foreign language to young children. Seeing foreign language training as a necessary step toward world peace, Pfeffer (1964) says that "it takes one language to build a wall, but it takes two to make a gate." Sparkman (1957) feels that language as a tool has played a tremendous part in social progress. He stated that it is through words and ideas, when direct experience is impossible, that one comes to identify with others and their problems. He added that the more languages one learns, the broader and richer will be his social life and his inner life.

Eaton (1957) stated that schools have been under tremendous obligation to prepare students for a world which has shrunk rapidly and has given us more and more contact with foreign people. He claims that "other countries are looking to us for much more than economic aid; they want understanding, recognition of their cultures, evidence that we are not the self-centered imperialists which rival nations call us". Eaton feels that FLES programs are an important step toward preparing children for future citizenship.

Holmes (1962) says that "being opposed to the teaching of a foreign language in elementary school today is just about like being opposed to peace". He claims that the FLES programs can 1- Improve human relations within the community. Children will learn that the "foreigner" has the same basic needs as they do. They will learn respect for what is strange and foreign to them. 2- Improve international relations - their study of foreign language transforms introverted isolationism and over confident provincialism into intelligent, personal interest in world problems.

In an article by Selvi (1953), he quoted John Foster Dullers who said that "it is important that Americans should get more familiar with modern foreign languages. The United States today carries new responsibilities in many quarters of the globe, and we are at a serious disadvantage because of the difficulty of finding persons who can deal with the foreign language program. Interpreters are no substitute".

In agreement with this, Girard (1955) feels that the fostering of tolerance for the foreign or unfamiliar are great contributions to the total growth of a child and that this growth, in turn, can lead to more satisfactory international relations.

Further support to FLES is given by Guerra (1957) who feels that the spirit of FLES gravitates upon the principle of improving social and cultural relations. He says that if the spoken language is accompanied by various cultural studies of the foreign country, there can be no better lesson in the ways of tolerance and understanding of the emotional fibre and social personality of a foreign people.

Wolf and Wolf (1962) feel so strongly that the early study of foreign

LANGUAGES CAN CONTRIBUTE LARGELY TO INTERNATIONAL COMMUNICATION, THAT THEY FEEL THAT AN EXTENSION OF STUDY TO MORE LANGUAGES IS NECESSARY. THEY STATE THAT JAPANESE, CHINESE, RUSSIAN AND ARABIC LANGUAGES SHOULD BE TAUGHT AS WELL AS THE MORE POPULARLY TAUGHT ONES. THERE ARE NUMEROUS OTHER OPINIONS WHICH CLEARLY SUPPORT FLES PROGRAM THROUGHOUT THE COUNTRY (EDITORIAL, GREEN BAY GAZETTE, 1959; KELIHER, 1959: HANSEN, 1954; BIRKMAIER, 1958).

MULHAUSER (1959) RECOMMENDS SPECIFIC ACTIONS TO BE TAKEN WHICH HE FEELS ARE NECESSARY IN FORMING FOREIGN LANGUAGE PROGRAMS. HE FEELS: 1- THAT FLES TEACHERS SHOULD URGE THE OFFICE OF EDUCATION TO CALL A WORKING CONFERENCE OF EXPERIENCED LEADERS IN FLES TO PLAN PROGRAMS, SUGGEST USES OF TOOLS, AND TO PUBLISH FINDINGS. 2- THAT THERE SHOULD BE AN ORGANIZED DEVELOPMENT OF THE JUNIOR HIGH SCHOOL PROGRAM TO FOLLOW UP FLES TRAINING. 3- THAT THERE SHOULD BE A NATIONAL FLES TEACHERS PLACEMENT BUREAU. 4- THAT THERE SHOULD BE A STATE SUPERVISOR FOR FOREIGN LANGUAGE.

IN DETERMINING WHETHER OR NOT TO TEACH FOREIGN LANGUAGES, DIGGS (1963) FEELS THAT SOME KEY QUESTIONS MUST BE ASKED:

1- TO WHAT END IS IT DIRECTED, CULTURAL, UTILITARIAN, OR PERSONAL SKILL?

2- WHAT IS THE GOAL UPON WHICH FOREIGN LANGUAGES SHOULD BE BASED? SHOULD THE METHOD OF TEACHING BE BASED UPON THE GOAL OF COMPETENCY IN SPEAKING, UNDERSTANDING, READING OR WRITING?

3- WHO SHOULD TEACH IT, CLASSROOM TEACHER OR SPECIALIST?

4- WHAT LANGUAGES SHOULD BE TAUGHT? THIS DEPENDS UPON GEOGRAPICAL LOCATIONS, BACKGROUNDS OF COMMUNITY, INTEREST OF PARENTS.

5- WHAT IS THE EFFECT OF FOREIGN LANGUAGE PROGRAM (ON THE TOTAL PROGRAM) IN THE ELEMENTARY SCHOOL? TIME FOR FOREIGN LANGUAGE MUST BE TAKEN FROM SOMEWHERE ELSE.

6- HOW MUCH SEQUENTIAL PATTERN SHOULD THERE BE TO FOREIGN LANGUAGE INSTRUCTION IN THE SYSTEM?

7- WHO SHOULD TAKE THE PROGRAM? SHOULD IT BE GIVEN TO ALL STUDENTS OR SHOULD THEY BE CAREFULLY SELECTED.

IN ESTABLISHING FLES PROGRAMS THROUGHOUT THE COUNTRY, THESE QUESTIONS HAVE BEEN CONSIDERED AND VARIOUS DECISIONS HAVE BEEN MADE. ONE OF THE LEADING PROBLEMS POINTED OUT BY AN EDITORIAL IN THE SCHOOL REVIEW (1955) AND BY KOLBERT AND MASTRONIE (1962) IS THE FACT THAT HIGH SCHOOL MUST BE PREPARED TO MEET THE ADVANCED QUALIFICATIONS OF THE STUDENTS WHO HAVE BEEN IN FLES PROGRAMS. CARTON (1961) AGREES WITH THIS STATEMENT, AND FEELS THAT IT HAS NOT BEEN ESTABLISHED THROUGH RESEARCH THAT THE AUDIO-LINGUAL APPROACH TAUGHT IN ELEMENTARY SCHOOL WILL ENHANCE STUDENTS' LATER ACQUISITION OF READING SKILLS AND GRAMMATICALLY CORRECT WRITING.

CHALLENGING THIS STATEMENT IS AN ARTICLE BY VACOLS (1961) IN WHICH HE DESCRIBES HIS OBSERVATIONS OF STUDENTS OF FLES PROGRAMS IN JR. HIGH school. He said that "it is an exhilarating experience for me to behold this 9th grade group. They possess a preciseness of pronunciation and scope of vocabulary that would never be attained in a typical secondary foreign language program. Grammatical points are easily explained and understood". He added that the group of 9th graders were comparable to a second year high school class. They were also far more advanced in aural comprehension and oral ability.

There has been a diversity of opinion as to the choice of a suitable teacher for FLES programs. Swiatek (1958) endorses the use of specialists who are hired to teach foreign language alone. This practice is utilized in many school districts and has received wide support (Jones, 1955). However, differing from this opinion is one raised by Kolbert (1958) who feels that foreign language should be part of the usual class life of a self-contained atmosphere. He adds that if it is to be a living experience running through the usual activities of the day, it must be handled by a well-trained classroom teacher. He feels that it matters little if children do not learn perfect accents from foreign born teachers; the important thing is for children to pick up a tool for communication.

Sister Ruth Adelaide (1958) suggests a method whereby colleges could send out, for a whole semester at a time, those foreign language students who have achieved excellence in their work to teach foreign language in nearby public schools. She cited examples where such a program has been carried out with success.

The proponents of FLES programs believe that foreign language training should begin at an early age for many reasons. Haydon (1956) said that "in order to *really learn* another language, one must become a child again. This does not mean that he should think as a child but it does mean that he must learn the new language as he learned his mother tongue: he must *hear* the new language not only for pronunciation, but for what is even more important, the rhythm or intonation of the new tongue". He added that the basic feeling for language can be obtained only when speech patterns are flexible *as a child*.

Bagg (1953) feels that teaching foreign language at the high school level is not successful. He said that "with the approach of adolescence and its inhibitions, language habits are fixed, set, and it is only the unusual student who, over a period of two or three years, is able to develop a fluency and ease of expression in a foreign language which could be considered to be satisfactory".

This opinion is supported by Villegas (1958) who says that most schools do not offer foreign language until high school. She adds that "it has been proven that at this age, a child's speech mechanism is set, and it is difficult for any pupil to acquire the correct intonation and accent which are extremely important in speaking and reading a modern foreign language".

Andersson (1957, 1961) stated that a twelve year course in foreign language from K - 12th grade is the most effective and productive kind of program. He feels that children under ten are best able to hear and reproduce linguistic signals and that because of this, young children will develop an automatic use of a foreign language and not just acquire a rote memory ot it.

It has been pointed out (Bruno, 1962; Diller 1961) that if FLES programs are to be effective, the study of Psycholinguistics can reveal such pertinent information as how language is learned and how speech attitude patterns are formed. They feel that the knowledge acquired through Science in the areas of learning theory and speech mechanisms are invaluable in planning successful language programs.

In line with this, theoretical support for FLES programs has grown from neurological as well as psychological bases. Penfield (1951) suggested that language acquisition prior to the age of fourteen is consistent with the Physiological development of the brain. Von Bekesy (1957) identified a complicated feedback system in the ear which adjusts the pitch of the voice as the child learns to speak. This mechanism helps explain why adolescents and adults find it difficult to speak foreign language with proper accents.

School districts throughout the country have differed on policy concerning the age at which foreign language should begin to be most effective. The California legislature passed a law (Goudrie, 1963) which makes the teaching of foreign language mandatory beginning in 6th grade as of July 1965. Cioffari (1956) suggests starting in third or fourth grade because by that time he feels that it will not hamper the child's knowledge of English. In the University of Chicago elementary schools, French was introduced to third grade children in 1955 (Dunkel and Pillet, 1957, 1962). The authors describe a successful program in which ALL third graders were given foreign language training. It was felt that if offered earlier than third grade, there would be certain disadvantages: 1- early introduction might take the edge off the child's interest and enthusiasm. 2- the child might experience confusion in his linguistic system if he learns a foreign language before learning his native language.

According to Kolbert and Mastronie (1962), a panel at the University of Pittsburgh made definite recommendations in favor of FLES beginning as early as kindergarten. They claim that at a very young age, there is effortless language learning due to many conditions existing in the early development of the child. These include sensitive learning powers of mimicry, innate curiosity and comparative freedom from inhibitions. Early training in foreign language has been given support throughout the nation (Chavez, 1956; Sister May Austina, 1960; Andersson, 1962, Levenson, 1962; Sister Rosemary, 1962; Ziegler, 1963; McRae, 1955; McCormack, 1955a, 1955b; Hall, 1959).

Another aspect of FLES which has aroused differences of opinion is the selection of children to take part in the program. Some educators feel that ALL children should be in the program, disagreeing with those who feel that the children should be selected on basis of intellectual giftedness. Dunkel and Pillet (1962) feel that not only gifted students can profit from it. They say that "some of the virtues of a great many of our gifted pupils can actually be a source of difficulty in a subject like language learning. These highly intelligent, highly verbal, creative

STUDENTS OFTEN FIND THE STEP BY STEP PROCESS INVOLVED IN LANGUAGE MASTERY EITHER UNFAMILIAR OR UNCONGENIAL." THE SUCCESS OF THE THIRD GRADE FOREIGN LANGUAGE PROGRAM WHICH WAS GIVEN IN THEIR SCHOOL OFFERS SUPPORT TO THE IDEA OF GIVING FOREIGN LANGUAGE TO ALL.

GEISSINGER (1956) REPORTS A SUCCESSFUL FOREIGN LANGUAGE PROGRAM IN SOMERVILLE, NEW JERSEY, IN WHICH ALL CHILDREN WERE INCLUDED, STARTING IN THIRD GRADE. AFTER THE FIRST FEW YEARS, IT WAS CONCLUDED THAT PUPILS OF A LOW I.Q. LEARNED A FOREIGN LANGUAGE AS WELL AS HIGH I.Q. STUDENTS, AND SOMETIMES EVEN BETTER. IT WAS FELT THAT THE ORAL-LINGUAL APPROACH ELIMINATED THE HANDICAP OF POOR READING AND COMPREHENSION.

THIS OPINION IS SUPPORTED BY LAWREW (1960). AT HER SCHOOL, SPANISH HAS BEEN OFFERED SUCCESSFULLY TO ALL CHILDREN DURING THE FIRST FOUR GRADES. AFTER THAT, WHEN LANGUAGE LEARNING BECAME INVOLVED WITH READING AND WRITING SOME OF THE POORER STUDENTS WERE DROPPED, BUT SHE CLAIMS THAT THEY WERE POOR STUDENTS IN ALL SUBJECTS; FOREIGN LANGUAGE WAS NOT GIVING THEM PARTICULAR DIFFICULTY.

AT A MEETING OF UNESCO INSTITUTE OF EDUCATION IN 1962 (UNESCO, 1962), DISCUSSION OF FLES PROGRAM CONCLUDED THAT "TEACHING YOUNG CHILDREN A SECOND LANGUAGE WAS PRACTICAL AND EDUCATIONALLY VALUABLE FOR ALL CHILDREN, AND NOT ONLY FOR THE SPECIALLY GIFTED, PROVIDED FULL USE WAS MADE OF THE RECENT ADVANCES IN THE METHODOLOGY OF MODERN LANGUAGE TEACHING".

A DIFFERENT VIEWPOINT IS UPHELD BY MANY OTHERS. A SURVEY POLL CONDUCTED AMONG 16,000 SCHOOL ADMINISTRATORS IN THE UNITED STATES (NATION SCHOOLS, 1961) BROUGHT A 49% RESPONSE. MOST OF THE SUPERINTENDENTS EXPRESSED THEIR PREFERENCE THAT FOREIGN LANGUAGE SHOULD BE OFFERED TO THE "TALENTED STUDENTS", CHILDREN WITH AN I.Q. OF 120 AND UP. RATTE (1957) DESCRIBED A PROGRAM IN LEXINGTON, MASSACHUSETTS IN WHICH FOREIGN LANGUAGES WAS RESTRICTED TO AN ACADEMICALLY SUPERIOR GROUP. IT WAS FELT THAT THE PROGRAM SHOULD BE LIMITED IN SCOPE BECAUSE THERE WERE NOT ENOUGH SUFFICIENTLY TRAINED TEACHERS FOR ALL. IN NEW YORK CITY, FLES PROGRAMS WERE ORGANIZED FOR INTELLECTICALLY GIFTED STUDENTS ONLY (HEUBENER, 1960).

ANOTHER POINT IS RAISED BY TIREMAN AND ZINTZ (1961). THEY STATE THAT IT IS NOT KNOWN WHAT PART INTELLIGENCE PLAYS IN THE LEARNING OF A FOREIGN LANGUAGE; THEY FEEL THAT OTHER QUALITIES SUCH AS PERCEPTION OF SOUND DIFFERENCE AND MOTIVATION ARE EQUALLY IMPORTANT.

AS EARLY AS 1954, IT WAS NOTED (ANDERSON, 1954) THAT DEFINITE SOCIAL GAINS WERE MADE AS A RESULT OF THE FLES PROGRAM. SOME OF THESE WERE AS FOLLOWS:

1- AN INCREASE IN READING ABOUT OTHER LANDS.
2- IMPROVEMENT IN SPEECH DEFECTS IN YOUNG CHILDREN.
3- ENRICHMENT FOR ALL THE FOREIGN LANGUAGE STUDENTS.
4- INCREASED CONFIDENCE IN SLOW-LEARNING CHILDREN BROUGHT ABOUT BY POSITIVE ACHIEVEMENT IN THE FOREIGN LANGUAGE STUDY.
5- IMPROVED ADJUSTMENT IN FOREIGN CHILDREN, APPARENTLY SINCE HE IS NO LONGER ASHAMED OF KNOWING A FOREIGN LANGUAGE.
6- APPRECIATION OF THE HERITAGE OF FOREIGN CHILDREN.

In spite of these apparent gains, one of the leading concerns among educators concerning FLES programs is that valuable time is being taken away from the study of other subjects, and that achievement in other areas would suffer. A suggestion which might be considered extreme is offered by Boehm (1959) who claims that Science and Math could easily be postponed until the upper grades, whereas foreign language learning is easy and rapid in young children. She quotes Piaget who says that abstract thinking is not sufficiently developed until age 12, and that what is learned of an abstract nature before then is mechanical and not meaningful. Since it is highly unlikely that such a radical change would be welcomed in the schools, it seems necessary to look for evidence supporting the view that if foreign language is offered to young children, their overall academic achievement would not suffer.

Some such evidence can be found. Ralph C. Giegle, Superintendent of Schools, Reading Pa. reports results (Elementary School Journal, May 1957) of a study concerning the achievement of basic learning before and after the inclusion of a FLES program. During 1954-55, French was taught for twenty minutes per day in four third grade classes. Some of these students continued French in fourth grade. A comparison was made between the scores of the fourth graders who had had no foreign lanuage; it was found that foreign language training had not harmed the basic learning programs.

In the Spring of 1959, the foreign language instruction project of the University of Illinois conducted a pilot study which sought to determine the effect of foreign language study on elementary school achievement in Arithmetic, English and Reading. Experimental and Control groups of ninety pupils each from the fourth grade were used for this study. The results indicated that the Experimental group showed greater achievement in Reading Vocabulary and Reading Comprehension. In Language Skills, Arithmetic and Work Study Skills, there were no significant differences.

Discussion of FLES programs (UNESCO Institute for Education, 1962) revealed that the committees involved which were reporting on foreign language study believed that a second language was not detrimental to the development of the first language, nor to achievement in other academic areas, as well as general intellectual growth.

The purpose of the present study is to contribute evidence concerning the effects of teaching foreign language upon the school achievement of children who had been in a FLES program from first grade on. The foreign language program in the Hicksville Public Schools has been in existence since 1953, and it was upon this program that the present study was instituted using the students in Hicksville as a source for data.

HYPOTHESES

The program pivotal to this study is whether the teaching of foreign language will interfere with performance in other subject areas.

That is, by introducing the study of foreign language to the elementary school curriculum do we run the risk of burdening the child with a subject he cannot master. Further, will the inclusion of the study of foreign language detract from the performance of the students in the typical subject areas of Reading, Language Arts, Arithmetic, Citizenship Education and Science.

In reducing this central consideration into more specific terms, the following hypotheses were formulated:

A- The Experimental (E) group will exhibit more skill in the Reading area than the control (C) group.

B- The (E) group will exhibit more skills in academic areas (as measured by achievement grade) than the (C) group.

C- The (E) group will exhibit more skill in Citizenship Education than the (C) group.

D- The (E) group will not exhibit any more skill in Science than the (C) group.

METHOD

In order to have been admitted into the language program, the following requirements were necessary; Total I.Q. score 120 or above*, reading at grade level or above, teacher recommendation, and satisfactory performance on the Earle-Fernandez Aptitude Test*. (Exceptions were made in cases where a student's I.Q. score was below 120, if the teacher strongly recommended language study based upon other criteria.)

These students were exposed to one of four foreign languages' for a period of twenty minutes each day. The languages offered were Spanish, French, Italian and German. The decision as to which language the student studied was primarily based upon teacher availability along with parental request. This may explain the small number of students in the German group.

All the students in the district, meeting the above requirements, were given foreign language. For the purposes of the present study, foreign language students who started in the first grade made up the experimental group. The control group consisted of those students who met the criteria for foreign language, but who entered school after the first grade.

The dropped group data were collected from the records of students who had been in the experimental group, but dropped out for a variety of reasons. These students were discussed in a separate report written at an earlier date and will not be discussed here.

Data were collected each year, for three years, on the I.Q. scores, achievement scores, and teacher grades of all of the students in the experimental and control groups. It was decided that analysis of variance would be computed to determine whether or not there were significant differences between the scores in these groups. As in the past, the male and female data were evaluated separately.

In considering I.Q. scores, the wide range of scores was divided into high, medium and low groups in order to assess possible differences between these groups. I. Q. intervals were chosen by dividing the full range of scores into thirds in order to make the groups equivalent in size. The high group consisted of those children whose I.Q. fell into the range of 126 to 168; the medium group 116 to 125; the low group 92 to 115.

The handling of the achievement scores, the subtests of the California Achievement test were used as follows: Reading Vocabulary, Reading Comprehension, Arithmetic Reasoning, Arithmetic Fundamental, Mechanics of English and Spelling.

The teacher grades which were considered were for the following subjects: Reading, Language Arts, Arithmetic, Citizenship Education and Science.

The final count, when all of the subjects collected over the three years were totaled, the experimental group 1,914* Ss and the control group had 456* Ss. Because the experimental was much larger than the control group, the experimental group was subdivided, by language into Italian, German, Spanish and French. Because the number of children taking German was minimal, the German group was dropped from consideration, and in the final data analysis, only three language groups were considered.

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* A locally developed language Aptitude Test.

Due to several factors beyond the control of the researchers, either in design or in data collecting, the number of subjects in the cells, for the purpose of analysis of variance were not equal to each other in all cases.

The teachers records were not always completed, and achievement tests and I.Q. tests were not given each year in every case. In order to correct for this in computing the statistical work, random selection of subjects, by grade, was performed, using the smallest number in each case, as criterion.

In order to equalize cells in the analysis of variance calculations, the smallest cell number was used as a base figure. All other cells in the matrix were decreased in size to the base cell number. This was done by randomly excluding students until all cells were equal in size.

Table A-II-1 through A-II-8 in Appendix A indicated the number of students available in each cell category before equalization was carried out.

DUMMY TABLE FOR **

ANALYSIS OF VARIANCE

	LANGUAGES (# OF LANGUAGES DEPENDENT ON AVAILABILITY OF STUDENTS)			
I.Q.	FRENCH	ITALIAN	SPANISH	CONTROL
UPPER				
MIDDLE				
LOWER				

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* These include the same student more than once if measures were obtainable on him for more than one grade.

** German was left out because of the extremely low number of students studying this subject.

SUMMARY AND CONCLUSION

In order to evaluate the results of foreign language training (by means of Aural Lingual approach) in the Hicksville Public Schools data was gathered from all students studying foreign language* in the elementary grades. The data covered was Teacher Grades in the areas of Reading, Language Arts, Arithmetic, Citizenship Education and Science; and Achievement scores (California Achievement Tests) in the areas of Reading Vocabulary, Reading Comprehension, Arithmetic Reasoning, Arithmetic Fundamental, Mechanics of English and Spelling.

Analysis of variance was used in the evaluation of second and third grade data in both the Teacher Grades and Achievement areas. All analysis was done with a separate male - female breakdown.

The study had originally presented four Hypothesis for evaluation.

The first Hypothesis states: "The Experimental (E) group will exhibit more skill in the Reading area than the Control (C) group."

TABLE S-1

RESULTS OF ANALYSIS OF VARIANCE PERTAINING TO LANGUAGE EFFECT

2ND GRADE

(ACHIEVEMENT SCORES IN)	MALES	FEMALES
READING VOCABULARY	No Diff.	No Diff.
READING COMPREHENSION	Sign. at .01	Sign. at .01
READING (TEACHER GRADES)	Sign. at .01	Sign. at .05

3RD GRADE

(ACHIEVEMENT SCORES IN)	MALES	FEMALES
READING VOCABULARY	Sign. at .01	No Diff.
READING COMPREHENSION	Sign. at .01	Sign. at .01
READING (TEACHER GRADES)	Sign. at .01	Sign. at .01

Examining Table S-1 we find that the area which does not exhibit an expected significant increase is that of Reading Vocabulary (except for 3rd grade males). All the differences evaluated are significant and, more pointedly in the expected direction. The Hypothesis as originally stated would seem to be supported except for the Reading Vocabulary area. It should be pointed out that the means of the Experimental group don't show any detrimental effect.

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* Data gathered on students in German was not used because of the small number of students.

The second Hypothesis states: "The Experimental (E) group will exhibit more skill in Academic areas (as measured by Achievement Grades) than the Control (C) group.

TABLE S-2

RESULTS OF ANALYSIS OF VARIANCE PERTAINING TO LANGUAGE EFFECT

(We have already examined Reading Vocabulary and Reading Comprehension)

2ND GRADE

(ACHIEVEMENT SCORES IN)	MALES	FEMALES
ARITHMETIC REASONING	Sign. at .01	Sign. at .01
ARITHMETIC FUNDAMENTAL	Sign. at .01	No Diff.
MECHANICS OF ENGLISH	Sign. at .01	No Diff.
SPELLING	Sign. at .01	No Diff.

3RD GRADE

(ACHIEVEMENT SCORES IN)	MALES	FEMALES
ARITHMETIC REASONING	Sign. at .05	Sign. at .05
ARITHMETIC FUNDAMENTAL	No Diff.	Sign. at .01
MECHANICS OF ENGLISH	Sign. at .01	Sign. at .05
SPELLING	Sign. at .01	No Diff.

In examining Table S-2 the only clear cut area of significant results is that of 2nd grade males and their achievement scores. The 2nd grade females don't exhibit these differences except in the Arithmetic Reasoning area. The hypothesis as stated is not fully supported by the results. This may well be because of the mixed character of the Achievement areas grouped under this hypothesis. In future studies it

WOULD APPEAR TO BE MORE MEANINGFUL TO CONSIDER MORE MEASUREMENT AND EVALUATION IN THE AREAS OF MECHANICS OF ENGLISH AND SPELLING.

THE THIRD HYPOTHESIS STATES: "THE EXPERIMENTAL (E) GROUP WILL EXHIBIT MORE SKILL IN CITIZENSHIP EDUCATION THAN THE CONTROL (C) GROUP".

TABLE S-3

RESULTS OF ANALYSIS OF VARIANCE PERTAINING TO LANGUAGE EFFECT

2ND GRADE

(TEACHER GRADES IN)	MALES	FEMALES
CITIZENSHIP EDUCATION	SIGN. AT .01	SIGN. AT .01

3RD GRADE

(TEACHER GRADES IN)	MALES	FEMALES
CITIZENSHIP EDUCATION	SIGN. AT .01	SIGN. AT .05

IN EXAMINING TABLE S-3 WE FIND THAT THE EXPERIMENTAL GROUP CONSISTENTLY EXHIBITS SIGNIFICANTLY HIGH DIFFERENCES IN PERFORMANCE IN THE AREA OF CITIZENSHIP EDUCATION. WE ACCEPT THE HYPOTHESIS THAT THE EXPERIMENTAL GROUP WILL EXHIBIT MORE SKILL IN CITIZENSHIP EDUCATION THAN THE CONTROL GROUP. IT WOULD APPEAR THAT SOME CARRY OVER EFFECT IS OPERATING IN THIS ACADEMIC AREA.

The fourth Hypothesis states: "The Experimental (E) group will not exhibit any more skill in Science than the Control (C) group".

TABLE S-4

RESULTS OF ANALYSIS OF VARIANCE PERTAINING TO LANGUAGE EFFECT

2ND GRADE

	MALES	FEMALES
SCIENCE	Sign. at .01	Sign. at .01

3RD GRADE

	MALES	FEMALES
SCIENCE	Sign. at .01	Sign. at .05

On examination of Table S-4 we find the significant differences are consistenly in favor of the Experimental (language) group. In this case we reject the hypothesis. The results on this situation are such that we must look for further information concerning so called "Hawthorne Effects" and for sampling problems.

In an attempt to evaluate what might be considered another pertinent area the effect of Intelligence (as measured in the first grade; i.e., Total Intelligence in the California Mental Maturity Test) was also considered.

If we summate the results of the F test conducted in tabular form we find some interesting results.

TABLE S-5

INTELLIGENCE EFFECT ON ACHIEVEMENT SCORES

2ND GRADE

	MALES	FEMALES
READING VOCABULARY	No Sign.	Sign. at .05
READING COMPREHENSION	No Sign.	Sign. at .01
ARITHMETIC REASONING	No Sign.	Sign. at .01
ARITHMETIC FUNDAMENTAL	No Sign.	Sign. at .01
MECHANICS OF ENGLISH	No Sign.	Sign. at .01
SPELLING	No Sign.	Sign. at .01

3RD GRADE

	MALES	FEMALES
READING VOCABULARY	No Sign.	Sign. at .01
READING COMPREHENSION	No Sign.	Sign. at .01
ARITHMETIC REASONING	Sign. at .01	Sign. at .01
ARITHMETIC FUNDAMENTAL	No Sign.	Sign. at .01
MECHANICS OF ENGLISH	No Sign.	Sign. at .01
SPELLING	No Sign.	Sign. at .01

In Table S-5 it can be seen that 2nd grade Intelligence did not show a significance in any area of Achievement for males while the 3rd grade level indicated Intelligence effect for males only in the area of Arithmetic Reasoning.

If we examine the female column we find Intelligence significant in every area of Achievement both in the second and third grades.

In Table S-6 (See Below) we once again find no Intelligence effect for males in the 2nd grade, but two areas show an effect on the third grade (Reading and Science). In the female column it is interesting to note that the areas of Citizenship Education and Science exhibit no Intelligence effect for both the second and third grades.

TABLE S-6

INTELLIGENCE EFFECT ON TEACHER GRADES

2nd GRADE

	MALES	FEMALES
READING	No Sign.	Sign. at .05
LANGUAGE ARTS	No Sign.	Sign. at .01
ARITHMETIC	No Sign.	Sign. at .01
CITIZENSHIP EDUCATION	No Sign.	No Sign.
SCIENCE	No Sign.	No Sign.

3rd GRADE

	MALES	FEMALES
READING	Sign. at .01	Sign. at .05
LANGUAGE ARTS	No Sign.	No Sign.
ARITHMETIC	No Sign.	Sign. at .05
CITIZENSHIP EDUCATION	No Sign.	No Sign.
SCIENCE	Sign. at .05	No Sign.

In the final analysis of data; examination of the mean performance of all groups at both grade levels, finds two areas of controversy. One as a mean reversal in the sense that those females studying Italian in the second grade performed at a lower level than the Control group in Spelling. The second was females studying Spanish in the third grade, performed at the same mean level as that of the Control group. In all other cases the Experimental group consistently score mean performances (in both Achievement and Teacher Grades) above the mean performance of the Control group.

If we use the data presented in this study we find the students studying foreign language in the second and third grades* show a mean performance in Achievement and Teacher Grades above that of a comparable group of students not taking a foreign language.

If these results are meaningful we can set to rest the argument centering around the negative effect of early foreign language training and in fact** find in this study, positive values occurring in the educational process involved in early foreign language training.

It is the intention that data gathered on these students will continue as they progress through school until such time as they graduate. As part of the process the Control group will also be enlarged as new students move into the district.

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* With the initial study starting in the first grade.

**With full realization of a "Hawthorne Effects" possibly operating in this, or any other case for that matter.

APPENDIX A

TABLE II-A

READING VOCABULARY - ACHIEVEMENT

GRADE 2 - MALES

SOURCE	SUM OF SQUARES	DEGREES OF FREEDOM	VARIANCE	F
INTELLIGENCE	0.26	2	0.13	0.03 (N.S.)
LANGUAGE	20.21	2	10.10	2.54 (N.S.)
INTERACTION	4.65	4	1.16	0.29 (N.S.)
WITHIN	32.18	81	3.97	
TOTAL	57.30	89		

Table II-A indicates that for 2nd Grade Reading Vocabulary - Achievement for the males, I.Q. level was not a significant factor (.05). By inspecting the I.Q. means it was seen that there was no systematic variation. The Experimental language (vs. Control) group source showed Non-Significance at the (.05) level. No significant interaction (.05) was found between Intelligence and the Experimental language (vs. Control) group. An inspection of the means in Table II-A-1 revealed that the overall mean scores of the Experimental groups were higher than that of the Control group. Of the Experimental group Spanish had a slightly higher mean than the French group. A critical ratio was run between the overall mean of the language groups and the Control group mean and found to be Non-Significant (.05).

TABLE II-A-1

MEAN SCORE BY GROUP

I.Q. INTERVAL	FRENCH	*ITALIAN	SPANISH	CONTROL
92 to 115	4.5	--	4.7	3.2
116 to 125	4.2	--	4.6	4.0
126 to 168	4.7	--	4.5	3.5
	4.5	--	4.6	3.6

* Italian did not have enough male students in each cell.

TABLE II-B

READING COMPREHENSION - ACHIEVEMENT

GRADE 2 - MALES

SOURCE	SUM OF SQUARES	DEGREES OF FREEDOM	VARIANCE	F
INTELLIGENCE	0.65	2	0.33	0.66 (N.S.)
LANGUAGE	5.65	2	2.83	5.66 (.01)
INTERACTION	4.76	4	1.19	2.38 (N.S.)
WITHIN	40.30	81	0.50	
TOTAL	51.36	89		

Table II-B indicates that for 2nd Grade Reading Comprehension - Achievement for the males, I.Q. level was not a significant factor (.05). By inspecting the I.Q. means it was seen that there was no systematic variation. The Experimental language (vs. Control) group source showed a significance at the (.01) level. No significant interaction (.05) was found between Intelligence and the Experimental language (vs. Control) group. An inspection of the means in Table II-B-1 revealed that the overall mean scores of the Experimental groups were higher than that of the Control group. Of the Experimental group Spanish had the highest mean and French the lowest mean score. A critical ratio was run between the overall mean of the language groups and the Control group mean and found to be Non-Significant (.05).

TABLE II-B-1

MEAN SCORE BY GROUP

I.Q. INTERVAL	FRENCH	*ITALIAN	SPANISH	CONTROL
92 to 115	3.9	--	4.6	3.3
116 to 125	3.9	--	4.1	3.9
126 to 168	4.1	--	3.8	3.5
	4.0	--	4.2	3.6

* Italian did not have enough male students in each cell.

TABLE II-C

ARITHMETIC REASONING - ACHIEVEMENT

GRADE 2 - MALES

SOURCE	SUM OF SQUARES	DEGREES OF FREEDOM	VARIANCE	F
INTELLIGENCE	0.85	2	0.43	1.05 (N.S.)
LANGUAGE	14.16	2	7.08	17.27 (.01)
INTERACTION	0.75	4	0.19	0.46 (N.S.)
WITHIN	33.40	81	0.41	
TOTAL	49.16	89		

Table II-C indicates that for 2nd Grade Arithmetic Reasoning - Achievement for the males, I.Q. level was not a significant factor (.05). By inspecting the I.Q. means it was seen that the higher I.Q. children had slightly higher Arithmetic Reasoning scores. The Experimental language (vs. Control) group source showed a significance at the (.01) level. No significant interaction (.05) was found between Intelligence and the Experimental language (vs. Control) group. An inspection of the means in Table II-C-1 revealed that the overall mean scores of the Experimental groups were higher than that of the Control group. Of the Experimental group French and Spanish had the same mean scores. A critical ratio was run between the overall mean of the language groups and the Control group mean and found to be Non-Significant (.05).

TABLE II-C-1

MEAN SCORE BY GROUP

I.Q INTERVAL	FRENCH	*ITALIAN	SPANISH	CONTROL
92 to 115	4.3	--	4.5	3.3
116 to 125	4.3	--	4.5	3.6
126 to 168	4.6	--	4.3	3.7
	4.4	--	4.4	3.5

* Italian did not have enough male students in each cell.

TABLE II-D

ARITHMETIC FUNDAMENTAL - ACHIEVEMENT

GRADE 2 - MALES

SOURCE	SUM OF SQUARES	DEGREES OF FREEDOM	VARIANCE	F
INTELLIGENCE	1.83	2	0.91	1.90 (N.S.)
LANGUAGE	9.14	2	4.57	9.60 (.01)
INTERACTION	0.16	4	0.04	0.08 (N.S.)
WITHIN	38.56	81	0.48	
TOTAL	46.69	89		

Table II-D indicates that for 2nd Grade Arithmetic Fundamental - Achievement for the Males, I.Q. level was not a significant factor (.05). By inspecting the I.Q. means it was seen that the higher I.Q. children had slightly higher Arithmetic Fundamental scores. The Experimental language (vs. Control) group source showed a significance at the (.01) level. No significant interaction (.05) was found between Intelligence and the Experimental language (vs. Control) group. An inspection of the means in Table II-D-1 revealed that the overall mean scores of the Experimental group were higher than that of the Control group. Of the Experimental group French had the highest mean and Spanish the lowest mean score. A critical ratio was run between the overall mean of the language groups and the Control group mean and found to be Non-Significant (.05).

TABLE II-D-1

MEAN SCORE BY GROUP

I.Q. INTERVAL	FRENCH	*ITALIAN	SPANISH	CONTROL
92 to 115	4.2	--	3.9	3.4
116 to 125	4.3	--	3.9	3.5
126 to 168	4.4	--	4.3	3.8
	4.3	--	4.0	3.5

* Italian did not have enough male students in each cell.

TABLE II-E
MECHANICS OF ENGLISH - ACHIEVEMENT
GRADE 2 - MALES

SOURCE	SUM OF SQUARES	DEGREES OF FREEDOM	VARIANCE	F
INTELLIGENCE	1.39	2	0.69	1.93 (N.S.)
LANGUAGE	11.78	2	5.89	16.36 (.01)
INTERACTION	1.26	4	0.32	0.89 (N.S.)
WITHIN	28.82	81	0.36	
TOTAL	43.25	89		

Table II-E indicates that for 2nd Grade Mechanics of English - Achievement for the Males, I.Q. level was not a significant factor (.05). By inspecting the I.Q. means it was seen that there was no systematic variation. The Experimental language (vs. Control) group source showed a significance at the (.01) level. No significant interaction (.05) was found between Intelligence and the Experimental language (vs. Control) group. An inspection of the means in Table II-E-1 revealed that the overall mean scores of the Experimental groups were higher than that of the Control group. Of the Experimental group French had the highest mean and Spanish the lowest mean score. A critical ratio was run between the overall mean of the language groups and the Control group mean and found to be Non-Significant (.05).

TABLE II-E-1
MEAN SCORE BY GROUP

I.Q. INTERVAL	FRENCH	*ITALIAN	SPANISH	CONTROL
92 to 115	4.0	--	4.0	3.5
116 to 125	4.3	--	3.8	3.1
126 to 168	4.5	--	4.0	3.6
	4.3	--	3.9	3.4

* Italian did not have enough male students in each cell.

TABLE II F

SPELLING ACHIEVEMENT

GRADE 2 - MALES

SOURCE	SUM OF SQUARES	DEGREES OF FREEDOM	VARIANCE	F
INTELLIGENCE	0.61	2	0.31	0.56 (N.S.)
LANGUAGE	15.01	2	7.51	13.65 (.01)
INTERACTION	1.90	4	0.48	0.87 (N.S.)
WITHIN	44.50	81	0.55	
TOTAL	62.02	89		

Table II-F indicates that for 2nd Grade Spelling - Achievement for the Males, I.Q. level was not a significant factor (.05). By inspecting the I.Q. means it was seen that the higher I.Q. children had higher Spelling scores. The Experimental language (vs. Control) group source showed a significance at the (.01) level. No significant interaction (.05) was found between Intelligence and the Experimental language (vs. Control) group. An inspection of the means in Table II-F-1 revealed that the overall mean scores of the Experimental groups were higher than that of the Control group. Of the Experimental group French had the highest mean and Spanish the lowest mean score. A critical ratio was run between the overall mean of the language groups and the Control group mean and found to be Non-Significant (.05).

TABLE II-F-1

MEAN SCORE BY GROUP

I.Q. INTERVAL	FRENCH	*ITALIAN	SPANISH	CONTROL
92 to 115	4.9	--	4.4	3.4
116 to 125	4.7	--	4.4	4.1
126 to 168	4.9	--	4.4	4.0
	4.8	--	4.4	3.8

* Italian did not have enough male students in each cell.

TABLE II-G

READING VOCABULARY - ACHIEVEMENT

GRADE 2 - FEMALES

SOURCE	SUM OF SQUARES	DEGREES OF FREEDOM	VARIANCE	F
INTELLIGENCE	3.82	2	1.91	3.60 (.05)
LANGUAGE	4.05	3	1.35	2.55 (N.S.)
INTERACTION	6.30	6	1.05	1.98 (N.S.)
WITHIN	50.62	96	0.53	
TOTAL	64.79	107		

Table II-G indicates that for 2nd Grade Reading Vocabulary - Achievement for the Females, I.Q. level was a significant factor (.05). By inspecting the I.Q. means it was seen that there is no systematic variation. The Experimental language (vs. Control) group source showed Non-Significance (.05). No significant interaction (.05) was found between Intelligence and the Experimental language (vs. Control) group. An inspection of the means in Table II-G-1 revealed that the overall mean scores of the Experimental groups were higher than that of the Control group. Of the Experimental groups Spanish had the highest mean and Italian the lowest mean score. A critical ratio was run between the overall mean of the Language groups and the Control group mean and found to be Non-Significant (.05).

TABLE II-G-1

MEAN SCORE BY GROUP

I.Q. INTERVAL	FRENCH	ITALIAN	SPANISH	CONTROL
92 to 115	4.4	4.4	4.7	3.5
116 to 125	4.7	4.4	4.8	4.2
126 to 168	4.5	4.7	4.7	4.9
	4.6	4.5	4.7	4.2

TABLE II-H
READING COMPREHENSION - ACHIEVEMENT
GRADE 2 - FEMALES

SOURCE	SUM OF SQUARES	DEGREES OF FREEDOM	VARIANCE	F
INTELLIGENCE	3.83	2	1.92	4.17 (.01)
LANGUAGE	8.48	3	2.83	6.15 (.01)
INTERACTION	9.01	6	1.50	3.26 (.05)
WITHIN	44.17	96	0.46	
TOTAL	65.49	107		

Table II-H indicates that for 2nd Grade Reading Comprehension - Achievement for the females, I.Q. level was a significant factor (.01). By inspecting the I.Q. means it was seen that the higher I.Q. children had higher Reading Comprehension scores. The Experimental language (vs. Control) group source showed a significance at the (.01) level. A significant interaction (.05) was found between Intelligence and the Experimental language (vs. Control) group. An inspection of the means in Table II-H-1 revealed that the overall mean scores of the Experimental groups were higher (except for French) than that of the Control group. Of the Experimental group Italian had the highest mean and Spanish the lowest mean score. A critical ratio was run between the overall mean of the language groups and the Control group mean and found to be significant at the (.01) level.

TABLE II-H-1
MEAN SCORE BY GROUP

I.Q. INTERVAL	FRENCH	ITALIAN	SPANISH	CONTROL
92 to 115	3.7	4.4	4.4	3.3
116 to 125	4.3	4.1	4.4	3.7
126 to 168	3.8	4.9	4.4	4.5
	3.9	4.5	4.4	3.9

TABLE II-I
ARITHMETIC REASONING - ACHIEVEMENT
GRADE 2 - FEMALES

SOURCE	SUM OF SQUARES	DEGREES OF FREEDOM	VARIANCE	F
INTELLIGENCE	2.82	2	1.41	5.04 (.01)
LANGUAGE	4.66	3	1.55	5.54 (.01)
INTERACTION	2.81	6	0.47	1.68 (N.S.)
WITHIN	26.71	96	0.28	
TOTAL	37.01	107		

Table II-I indicates that for 2nd Grade Arithmetic Reasoning - Achievement for the Females, I.Q. level was a signficant factor (.01). By inspecting the I.Q. means it was seen that the higher I.Q. children had higher Arithmetic Reasoning scores. The Experimental language (vs. Control) group source showed a significance at the (.01) level. No significant interaction (.05) was found between Intelligence and the Experimental language (vs. Control) group. An inspection of the means in Table II-I-1 revealed that the overall mean scores of the Experimental groups were higher than that of the Control group. Of the Experimental group Spanish had the highest mean and French the lowest mean score. A critical ratio was run between the overall mean of the language groups and the Control group mean and found to be Non-Significant (.05).

TABLE II-I-1
MEAN SCORE BY GROUP

I.Q. INTERVAL	FRENCH	ITALIAN	SPANISH	CONTROL
92 to 115	4.0	4.3	4.5	3.7
116 to 125	4.6	4.3	4.5	3.8
126 to 168	4.3	4.8	4.8	4.4
	4.3	4.4	4.5	4.0

TABLE II-J

ARITHMETIC FUNDAMENTAL - ACHIEVEMENT

GRADE 2 - FEMALES

SOURCE	SUM OF SQUARES	DEGREES OF FREEDOM	VARIANCE	F
INTELLIGENCE	7.58	2	3.79	8.24 (.01)
LANGUAGE	2.37	3	0.79	1.72 (N.S.)
INTERACTION	4.73	6	0.79	1.72 (N.S.)
WITHIN	43.86	96	0.46	
TOTAL	58.54	107		

Table II-J indicates that for 2nd Grade Arithmetic Fundamental - Achievement for the Females, I.Q. level was a significant factor (.01). By inspecting the I.Q. means it was seen that the higher I.Q. children had higher Arithmetic Fundamental scores. The Experimental language (vs. Control) group source was Non-Significant at the (.05) level. No significant interaction (.05) was found between Intelligence and the Experimental language (vs. Control) group. An inspection of the means in Table II-J-1 revealed that the overall mean scores of the Experimental groups were higher than that of the Control group. Of the Experimental group French had the highest mean and Italian the lowest mean score. A critical ratio was run between the overall mean of the language groups and the Control group mean and found to be Non-Significant (.05).

TABLE II-J-1

MEAN SCORE BY GROUP

I.Q. INTERVAL	FRENCH	ITALIAN	SPANISH	CONTROL
92 to 115	3.5	3.9	3.7	3.7
116 to 125	4.3	3.9	4.3	3.8
126 to 168	4.9	4.1	4.4	4.0
	4.2	4.0	4.1	3.8

TABLE II-K
MECHANICS OF ENGLISH - ACHIEVEMENT
GRADE 2 - FEMALES

SOURCE	SUM OF SQUARES	DEGREES OF FREEDOM	VARIANCE	F
INTELLIGENCE	7.06	2	3.53	7.84 (.01)
LANGUAGE	3.56	3	1.19	2.64 (N.S.)
INTERACTION	2.99	6	0.50	1.11 (N.S.)
WITHIN	43.53	96	0.45	
TOTAL	57.14	107		

TABLE II-K INDICATES THAT FOR 2ND GRADE MECHANICS OF ENGLISH - ACHIEVEMENT FOR THE FEMALES I.Q. LEVEL WAS A SIGNIFICANT FACTOR (.01). BY INSPECTING THE I.Q. MEANS IT WAS SEEN THAT THE HIGHER I.Q. CHILDREN HAD HIGHER MECHANICS OF ENGLISH SCORES. THE EXPERIMENTAL LANGUAGE (VS. CONTROL) GROUP SOURCE WAS NON SIGNIFICANT AT THE (.05) LEVEL. NO SIGNIFICANT INTERACTION (.05) WAS FOUND BETWEEN INTELLIGENCE AND THE EXPERIMENTAL LANGUAGE (VS. CONTROL) GROUP. AN INSPECTION OF THE MEANS IN TABLE II-K-1 REVEALED THAT THE OVERALL MEAN SCORES OF THE EXPERIMENTAL GROUPS WERE HIGHER THAN THAT OF THE CONTROL GROUP. OF THE EXPERIMENTAL GROUP FRENCH HAD THE HIGHEST MEAN WITH SPANISH AND ITALIAN TIED FOR THE LOWEST MEAN SCORE. A CRITICAL RATIO WAS RUN BETWEEN THE OVERALL MEAN OF THE LANGUAGE GROUPS AND THE CONTROL GROUP MEAN AND FOUND TO BE NON-SIGNIFICANT (.05).

TABLE II-K-1
MEAN SCCRE BY GROUP

I.Q. INTERVAL	FRENCH	ITALIAN	SPANISH	CONTROL
92 TO 115	4.0	4.1	3.8	3.5
116 TO 125	4.8	4.3	4.6	3.8
126 TO 168	4.4	4.4	4.4	4.4
	4.4	4.3	4.3	3.9

TABLE II-L
SPELLING - ACHIEVEMENT
GRADE 2 - FEMALES

SOURCE	SUM OF SQUARES	DEGREES OF FREEDOM	VARIANCE	F
INTELLIGENCE	5.23	2	2.62	5.14 (.01)
LANGUAGE	4.16	3	1.39	2.73 (N.S.)
INTERACTION	2.72	6	0.45	0.88 (N.S.)
WITHIN	49.03	96	0.51	
TOTAL	61.14	107		

Table II-L indicates that for 2nd Grade Spelling - Achievement for the females, I.Q. level was a significant factor (.01). By inspecting the I.Q. means it was seen that the higher I.Q. children had higher Spelling scores. The Experimental language (vs. Control) group source was Non-Significant at the (.05) level. No significant interaction (.05) was found between Intelligence and the Experimental language (vs. Control) group. An inspection of the means in Table II-L-1 revealed that the overall mean scores of the Experimental groups were higher (except for Italian which was lower) than that of the Control group. Of the Experimental group French had the highest mean and Italian the lowest mean score. A critical ratio was run between the overall mean of the language groups and the Control group mean and found to be Non-Significant (.05).

TABLE II-L-1
MEAN SCORE BY GROUP

I.Q. INTERVAL	FRENCH	ITALIAN	SPANISH	CONTROL
92 to 115	4.2	4.2	4.5	3.8
116 to 125	4.8	4.1	4.7	4.6
126 to 168	5.2	4.6	4.6	4.6
	4.8	4.3	4.6	4.5

TABLE II-M
READING - TEACHER GRADES
GRADE 2 - MALES

SOURCE	SUM OF SQUARES	DEGREES OF FREEDOM	VARIANCE	F
INTELLIGENCE	50	2	25.0	1.21 (N.S.)
LANGUAGE	562	2	281.0	11.38 (.01)
INTERACTION	71	4	17.8	0.72 (N.S.)
WITHIN	2000	81	24.7	
TOTAL	2683	89		

Table II-M indicates that for 2nd Grade Reading - Teacher Grades for the males, I.Q. level was not a significant factor (.05). By inspecting the I.Q. means it was seen that there is no systematic variance. The Experimental language (vs. Control) group source showed a significance at the (.01) level. No significant interaction (.05) was found between Intelligence and the Experimental language (vs Control) group. An inspection of the means in Table II-M-1 revealed that the overall mean scores of the Experimental groups were higher than that of the Control group. Of the Experimental group French had a slightly higher mean than the Spanish group. A critical ratio was run between the overall mean of the language groups and the Control group mean and found to be Non-Significant (.05).

TABLE II-M-1
MEAN SCORE BY GROUP

I.Q. INTERVAL	FRENCH	*ITALIAN	SPANISH	CONTROL
92 to 115	93.2	--	92.5	85.1
116 to 125	92.8	--	93.6	89.6
126 to 168	93.5	--	92.8	88.6
	93.1	--	93.0	87.7

* Italian did not have enough male students in each cell.

TABLE II-N

LANGUAGE ARTS - TEACHER GRADES

GRADE 2 - MALES

SOURCE	SUM OF SQUARES	DEGREES OF FREEDOM	VARIANCE	F
INTELLIGENCE	16	2	8.0	0.42 (N.S.)
LANGUAGE	709	2	354.5	18.66 (.01)
INTERACTION	487	4	121.7	6.41 (.01)
WITHIN	1542	81	19.0	
TOTAL	2754	89		

Table II-N indicates that for 2nd Grade Language Arts - Teacher Grades for the Males, I.Q. level was not a significant factor (.05). By inspecting the I.Q. means it was seen that there was no systematic variation. The Experimental (vs. Control) group source showed a significance at the (.01) level. No significant interaction (.05) was found between Intelligence and the Experimental language (vs. Control) group. An inspection of the means in Table II-N-1 revealed that the overall mean scores of the Experimental groups were higher than that of the Control group. Of the Experimental group French had the highest mean and Spanish the lowest mean score. A critical ratio was run between the overall mean of the language groups and the Control group mean and found to be Non-Significant (.05).

TABLE II-N-1

MEAN SCORE BY GROUP

I.Q. INTERVAL	FRENCH	*ITALIAN	SPANISH	CONTROL
92 to 115	92.8	--	93.3	85.0
116 to 125	92.4	--	92.1	88.3
126 to 168	92.4	--	91.3	86.0
	92.5	--	92.2	86.4

* Italian did not have enough male students in each cell.

TABLE 11-0

ARITHMETIC - TEACHER GRADES

GRADE 2 - MALES

SOURCE	SUM OF SQUARES	DEGREES OF FREEDOM	VARIANCE	F
INTELLIGENCE	147	2	73.5	1.78 (N.S.)
LANGUAGE	404	2	202.0	4.89 (.01)
INTERACTION	54	4	13.5	0.33 (N.S.)
WITHIN	3342	81	41.3	
TOTAL	3947	89		

Table 11-0 indicates that for 2nd Grade Arithmetic - Teacher Grades for the Males, I.Q. level was not a significant factor (.05). By inspecting the I.Q. means it was seen that the higher I.Q. children had higher Arithmetic scores. The Experimental language (vs. Control) group source showed a significance at the (.01) level. No significant interaction (.05) was found between Intelligence and the Experimental language (vs. Control) group. An inspection of the means in Table 11-0-1 revealed that the overall mean scores of the Experimental groups were higher than that of the Control group. Of the Experimental group French had the highest mean and Spanish the lowest mean score. A critical ratio was run between the overall mean of the language groups and the Control group mean and found to be Non-Significant (.05).

TABLE 11-0-1

MEAN SCORE BY GROUP

I.Q. INTERVAL	FRENCH	*ITALIAN	SPANISH	CONTROL
92 to 115	90.0	--	90.7	85.1
116 to 125	92.7	--	90.0	86.6
126 to 168	93.8	--	91.6	89.6
	92.1	--	90.7	87.1

* Italian did not have enough males students in each cell.

TABLE II-P

CITIZENSHIP EDUCATION - TEACHER GRADES

GRADE 2 - MALES

SOURCE	SUM OF SQUARES	DEGREES OF FREEDOM	VARIANCE	F
INTELLIGENCE	16	2	8.0	0.52 (N.S.)
LANGUAGE	510	2	250.0	16.03 (.01)
INTERACTION	32	4	8.0	0.51 (N.S.)
WITHIN	1264	81	15.6	
TOTAL	1822	89		

Table II-P indicates that for 2nd Grade Citizenship Education - Teacher Grades for the Males, I.Q. level was not a significant factor (.05). By inspecting the I.Q. means it was seen that there was no systematic variation. The Experimental language (vs. Control) group source showed a significance at the (.01) level. No significant interaction (.05) was found between Intelligence and the Experimental language (vs. Control) group. An inspection of the means in Table II-P-1 revealed that the over-all mean scores of the Experimental groups were higher than that of the Control group. Of the Experimental group French had a slightly higher mean than the Spanish group. A critical ratio was run between the overall mean of the language groups and the Control group mean and found to be Non-Significant (.05).

TABLE II-P-1

MEAN SCORE BY GROUP

I.Q. INTERVAL	FRENCH	*ITALIAN	SPANISH	CONTROL
92 to 115	91.8	--	91.1	86.3
116 to 125	91.4	--	93.3	87.3
126 to 168	92.2	--	90.7	86.5
	91.8	--	91.7	86.7

* Italian did not have enough male students in each cell.

TABLE II-Q

SCIENCE _ TEACHER GRADES

GRADE 2 - MALES

SOURCE	SUM OF SQUARES	DEGREES OF FREEDOM	VARIANCE	F
INTELLIGENCE	11	2	05.5	0.30 (N.S.)
LANGUAGE	621	2	310.5	16.85 (.01)
INTERACTION	510	4	127.5	0.69 (N.S.)
WITHIN	1493	81	18.4	
TOTAL	2176	89		

Table II-Q indicates that for 2nd Grade Science - Teacher Grades for the Males, I.Q. level was not a significant factor (.05). By inspecting the I.Q. means it was seen that the higher I.Q. children had slightly higher Science scores. The Experimental language (vs. Control) group source showed a significance at the (.01) level. No significant interaction (.05) was found between Intelligence and the Experimental language (vs. Control) group. An inspection of the means in Table II-Q-1 revealed that the overall mean scores of the Experimental groups were higher than that of the Control group. Of the Experimental group French had the highest mean and Spanish the lowest mean score. A critical ratio was run between the overall mean of the language groups and the Control group mean and found to be Non-Significant (.05).

TABLE II-Q-1

MEAN SCORE BY GROUP

I.Q. INTERVAL	FRENCH	*ITALIAN	SPANISH	CONTROL
92 to 115	92.1	--	91.6	85.3
116 to 125	91.2	--	93.1	86.6
126 to 168	93.0	--	91.0	87.4
	92.1	--	91.9	86.4

* Italian did not have enough male students in each cell.

TABLE II-R

READING - TEACHER GRADES

GRADE 2 - FEMALES

SOURCE	SUM OF SQUARES	DEGREES OF FREEDOM	VARIANCE	F
INTELLIGENCE	121	2	60.5	3.13 (.05)
LANGUAGE	194	3	64.7	3.35 (.05)
INTERACTION	197	6	32.8	1.70 (N.S.)
WITHIN	2781	144	19.3	
TOTAL	3293	155		

Table II-R indicates that for 2nd Grade Reading - Teacher Grades for the females, I.Q. level was a significant factor (.05). By inspecting the I.Q. means it was seen that the higher I.Q. children had higher Reading scores. The Experimental language (vs. Control) group source showed a significance at the (.05) level. No significant interaction (.05) was found between Intelligence and the Experimental language (vs. Control) group. An inspection of the means in Table II-R-1 revealed that the overall mean scores of the Experimental groups were higher than those of the Control group. Of the Experimental group Italian had the highest mean while Spanish and French had identical low mean scores. A critical ratio was run between the overall mean of the language groups and the Control group mean and found to be Non-Significant (.05).

TABLE II-R-1

MEAN SCORE BY GROUP

I.Q. INTERVAL	FRENCH	ITALIAN	SPANISH	CONTROL
92 to 115	91.1	92.2	93.0	86.5
116 to 125	91.9	91.1	91.9	90.1
126 to 168	93.4	93.6	91.0	92.3
	92.1	92.3	92.1	89.6

TABLE II-S
LANGUAGE ARTS - TEACHER GRADES
GRADE 2 - FEMALES

SOURCE	SUM OF SQUARES	DEGREES OF FREEDOM	VARIANCE	F
INTELLIGENCE	219	2	109.5	5.81 (.01)
LANGUAGE	89	3	29.7	1.58 (N.S.)
INTERACTION	257	6	42.8	2.27 (N.S.)
WITHIN	2714	144	18.9	
TOTAL	3279	155		

Table II-S indicates that for 2nd Grade Language Arts - Teacher Grades for the Females, I.Q. level was a significant factor (.01). By inspecting the I.Q. means it was seen that the higher I.Q. children had higher Language Arts scores. The Experimental language (vs. Control) group source showed no significance at the (.05) level. No significant interaction (.05) was found between Intelligence and the Experimental language (vs. Control) group. An inspection of the means in Table II-S-1 revealed that the overall mean scores of the Experimental groups were higher than that of the Control group. Of the Experimental group Italian had the highest mean and French the lowest mean score. A critical ratio was run between the overall mean of the language groups and the Control group mean and found to be Non-Significant (.01).

TABLE II-S-1
MEAN SCORE BY GROUP

I.Q. INTERVAL	FRENCH	ITALIAN	SPANISH	CONTROL
92 to 115	89.8	91.9	91.2	87.5
116 to 125	90.7	90.3	92.0	88.6
126 to 168	92.6	94.2	90.3	93.9
	91.1	92.2	91.2	90.0

TABLE II-T
ARITHMETIC - TEACHER GRADES
GRADE 2 - FEMALES

SOURCE	SUM OF SQUARES	DEGREES OF FREEDOM	VARIANCE	F
INTELLIGENCE	199	2	99.5	4.26 (.01)
LANGUAGE	303	3	101.0	4.33 (.01)
INTERACTION	234	6	39.0	1.67 (N.S.)
WITHIN	3362	144	23.4	
TOTAL	4098	155		

Table II-T indicates that for 2nd Grade Arithmetic - Teacher Grades for the females, I.Q. level was a significant factor (.01). By inspecting the I.Q. means it was seen that the higher I.Q. children had higher Arithmetic scores. The Experimental language (vs. Control) group source showed a significance at the (.01) level. No significant interaction (.05) was found between Intelligence and the Experimental language (vs. Control) group. An inspection of the means in Table II-T-1 revealed that the overall mean scores of the Experimental groups were higher than that of the Control group. Of the Experimental group Italian had the highest mean and Spanish the lowest mean score. A critical ratio was run between the overall mean of the language groups and the Control group mean and found to be Non-Significant (.01).

TABLE II-T-1
MEAN SCORE BY GROUP

I.Q. INTERVAL	FRENCH	ITALIAN	SPANISH	CONTROL
92 to 115	87.8	92.3	89.5	86.5
116 to 125	91.8	92.5	89.2	89.0
126 to 168	91.7	94.2	90.4	92.8
	90.5	93.0	89.7	89.5

TABLE II-U

CITIZENSHIP EDUCATION - TEACHER GRADES

GRADE 2 - FEMALES

SOURCE	SUM OF SQUARES	DEGREES OF FREEDOM	VARIANCE	F
INTELLIGENCE	27	2	13.5	0.81 (N.S.)
LANGUAGE	227	3	75.7	4.54 (.01)
INTERACTION	107	6	17.8	1.07 (N.S.)
WITHIN	2399	144	16.7	
TOTAL	2760	155		

Table II-U indicates that for 2nd Grade Citizenship Education - Teacher Grades for the Females, I.Q. level was not a significant factor (.05). By inspecting the I.Q. means it was seen that the higher I.Q. children had higher Citizenship Education scores. The Experimental language (vs. Control) group source showed a significance at the (.01) level. No significant interaction (.05) was found between Intelligence and the Experimental language (vs. Control) group. An inspection of the means in Table II-U-1 revealed that overall mean scores of the Experimental groups were higher than that of the Control group. Of the Experimental group Italian had the highest mean and Spanish the lowest mean score. A critical ratio was run between the overall mean of the language groups and the Control group mean and found to be Non-Significant (.05).

TABLE II-U-1

MEAN SCORE BY GROUP

I.Q. INTERVAL	FRENCH	ITALIAN	SPANISH	CONTROL
92 to 115	90.2	92.3	89.3	86.5
116 to 125	90.4	91.3	90.6	88.2
126 to 168	91.7	91.2	89.3	90.3
	90.8	91.6	89.7	88.4

TABLE II-V
SCIENCE - TEACHER GRADES
GRADE 2 - FEMALES

SOURCE	SUM OF SQUARES	DEGREES OF FREEDOM	VARIANCE	F
INTELLIGENCE	83	2	41.5	2.25 (N.S.)
LANGUAGE	256	3	85.3	4.64 (.01)
INTERACTION	123	6	20.5	1.11 (N.S.)
WITHIN	2656	144	18.4	
TOTAL	3118	155		

Table II-V indicates that for 2nd Grade Science - Teacher Grades for the females, I.Q. level was not a significant factor (.05). By inspecting the I.Q. means it was seen that the higher I.Q. children had higher Science scores. The Experimental language (vs. Control) group source showed a significance at the (.01) level. No significant interaction (.05) was found between Intelligence and the Experimental language (vs. Control) group. An inspection of the means in Table II-V-1 revealed that the overall mean scores of the Experimental groups were higher than that of the Control group. Of the Experimental group French had the highest mean and Spanish the lowest mean score. A critical ratio was run between the overall mean of the language groups and the Control group mean and found to be Non-Significant (.05).

TABLE II-V-1
MEAN SCORE BY GROUP

I.Q. INTERVAL	FRENCH	ITALIAN	SPANISH	CONTROL
92 to 115	90.4	90.8	89.8	85.1
116 to 125	90.6	89.4	89.8	87.3
126 to 168	91.6	91.1	89.8	90.2
	90.9	90.4	89.9	87.5

TABLE III-A
READING VOCABULARY - ACHIEVEMENT
GRADE 3 - MALES

SOURCE	SUM OF SQUARES	DEGREES OF FREEDOM	VARIANCE	F
INTELLIGENCE	1.77	2	0.89	2.87 (N.S.)
LANGUAGE	11.69	2	5.85	18.89 (.01)
INTERACTION	1.71	4	0.43	1.38 (N.S.)
WITHIN	22.66	72	0.31	
TOTAL	37.83	80		

TABLE III-A INDICATES THAT FOR 3RD GRADE READING VOCABULARY - ACHIEVEMENT FOR THE MALES, I.Q. LEVEL WAS NOT A SIGNIFICANT FACTOR (.05). BY INSPECTING THE I.Q. MEANS IT WAS SEEN THAT THERE WAS NO SYSTEMATIC VARIATION. THE EXPERIMENTAL LANGUAGE (VS. CONTROL) GROUP SOURCE SHOWED A SIGNIFICANCE AT THE (.01). LEVEL. NO SIGNIFICANT INTERACTION (.05) WAS FOUND BETWEEN INTELLIGENCE AND THE EXPERIMENTAL LANGUAGE (VS. CONTROL) GROUP. AN INSPECTION OF THE MEANS IN TABLE III-A-1 REVEALED THAT THE OVERALL MEAN SCORES OF THE EXPERIMENTAL GROUPS WERE HIGHER THAN THAT OF THE CONTROL GROUP. OF THE EXPERIMENTAL GROUP FRENCH HAD THE HIGHEST **MEAN** AND SPANISH THE LOWEST MEAN SCORE. A CRITICAL RATIO WAS RUN BETWEEN THE OVERALL MEAN OF THE LANGUAGE GROUPS AND THE CONTROL GROUP MEAN AND FOUND TO BE NON-SIGNIFICANT (.05).

TABLE III-A-1
MEAN SCORE BY GROUP

I.Q. INTERVAL	FRENCH	*ITALIAN	SPANISH	CONTROL
92 TO 115	5.7	--	5.1	4.6
116 TO 125	5.6	--	5.7	5.2
126 TO 168	5.7	--	5.4	4.5
	5.7	--	5.4	4.8

* ITALIAN DID NOT HAVE ENOUGH MALE STUDENTS IN EACH CELL.

TABLE III-B

READING COMPREHENSION - ACHIEVEMENT

GRADE 3 - MALES

SOURCE	SUM OF SQUARES	DEGREES OF FREEDOM	VARIANCE	F
INTELLIGENCE	225	2	1.13	3.05 (N.S.)
LANGUAGE	1423	2	7.12	19.24 (.01)
INTERACTION	243	4	0.61	1.15 (N.S.)
WITHIN	2660	72	0.37	
TOTAL	4551	80		

Table III-B indicates that for 3rd Grade Reading Comprehension - Achievement for the Males, I.Q. level was not a significant factor (.05). By inspecting the I.Q. means it was seen that there was no systematic variation. The Experimental language (vs. Control) group source showed a significance at the (.01) level. No significant interaction (.05) was found between Intelligence and the Experimental language (vs. Control) group. An inspection of the means in Table III-B-1 revealed that the overall mean scores of the Experimental groups were higher than that of the Control group. Of the Experimental group French had the highest mean and Spanish the lowest mean score. A critical ratio was run between the overall mean of the language groups and the Control group mean and found to be Non-Significant (.05).

TABLE III-B-1

MEAN SCORE BY GROUP

I.Q. INTERVAL	FRENCH	*ITALIAN	SPANISH	CONTROL
92 to 115	5.5	--	5.3	4.6
116 to 125	5.7	--	5.4	5.0
126 to 168	5.3	--	5.6	4.1
	5.5	--	5.4	4.6

* Italian did not have enough male students in each cell.

TABLE III-C
ARITHMETIC REASONING - ACHIEVEMENT
GRADE 3 - MALES

SOURCE	SUM OF SQUARES	DEGREES OF FREEDOM	VARIANCE	F
INTELLIGENCE	1.37	2	0.69	4.06 (.01)
LANGUAGE	4.83	2	2.41	14.17 (.05)
INTERACTION	0.85	4	0.21	1.24 (N.S.)
WITHIN	12.15	72	0.17	
TOTAL	19.20	80		

Table III-C indicates that for 3rd Grade Arithmetic Reasoning - Achievement for the Males, I.Q. level was a significant factor (.01). By inspecting the I.Q. means it was seen that there was no systematic variation. The Experimental language (vs. Control) group source showed a significance at the (.05) level. No significant interaction (.05) was found between Intelligence and the Experimental language (vs. Control) group. An inspection of the means in Table III-C-1 revealed that the overall mean scores of the Experimental groups were higher than that of the Control group. Of the Experimental group French had a slightly higher mean than the Spanish group. A critical ratio was run between the overall mean of the language groups and the Control group mean and found to be Non-Significant (.05).

TABLE III-C-1
MEAN SCORE BY GROUP

I.Q. INTERVAL	FRENCH	*ITALIAN	SPANISH	CONTROL
92 to 115	5.4	--	5.1	4.5
116 to 125	5.6	--	5.3	5.1
126 to 168	5.3	--	5.4	4.9
	5.4	--	5.3	4.8

* Italian did not have enough male students in each cell.

TABLE III-D
ARITHMETIC FUNDAMENTAL - ACHIEVEMENT
GRADE 3 - MALES

SOURCE	SUM OF SQUARES	DEGREES OF FREEDOM	VARIANCE	F
INTELLIGENCE	0.21	2	0.11	0.03 (N.S.)
LANGUAGE	7.89	2	3.94	1.22 (N.S.)
INTERACTION	1.13	4	0.28	0.09 (N.S.)
WITHIN	23.24	72	3.22	
TOTAL	32.47	80		

Table III-D indicates that for 3rd Grade Arithmetic Fundamental - Achievement for the Males, I.Q. level was not a significant factor (.05). By inspecting the I.Q. means it was seen that there was no systematic variation. The Experimental language (vs. Control) group source showed Non-Significance at the (.05) level. No significant interaction (.05) was found between Intelligence and the Experimental language (vs. Control) group. An inspection of the means in Table III-D-1 revealed that the overall mean scores of the Experimental groups were higher than that of the Control group. Of the Experimental group Spanish had a slightly higher mean than the French group. A critical ratio was run between the overall mean of the language groups and the Control group mean and found to be Non-Significant (.05).

TABLE III-D-1
MEAN SCORE BY GROUP

I.Q. INTERVAL	FRENCH	*ITALIAN	SPANISH	CONTROL
92 to 115	5.3	--	5.1	4.5
116 to 125	5.3	--	5.4	4.5
126 to 168	5.1	--	5.3	4.8
	5.2	--	5.3	4.6

* Italian did not have enough male students in each cell.

TABLE III-E

MECHANICS OF ENGLISH - ACHIEVEMENT

GRADE 3 - MALES

SOURCE	SUM OF SQUARES	DEGREES OF FREEDOM	VARIANCE	F
INTELLIGENCE	1.99	2	0.99	1.32 (N.S.)
LANGUAGE	9.73	2	4.87	6.49 (.01)
INTERACTION	2.12	4	0.53	0.71 (N.S.)
WITHIN	54.19	72	0.75	
TOTAL	68.03	80		

Table III-E indicates that for 3rd Grade Mechanics of English - Achievement for the Males, I.Q. level was not a significant factor (.05). By inspecting the I.Q. means it was seen that there was no systematic variation. The Experimental language (vs. Control) group source showed a significance at the (.01) level. No significant interaction (.05) was found between Intelligence and the Experimental language (vs. Control) group. An inspection of the means in Table III-E-1 revealed that the overall mean scores of the Experimental groups were higher than that of the Control group. Of the Experimental group French had the highest mean and Spanish the lowest mean score. A critical ratio was run between the overall mean of the language groups and the Control group mean and found to be Non-Significant (.05).

TABLE III-E-1

MEAN SCORE BY GROUP

I.Q. INTERVAL	FRENCH	*ITALIAN	SPANISH	CONTROL
92 to 115	5.2	--	4.5	4.4
116 to 125	5.1	--	4.5	4.4
126 to 168	5.4	--	5.3	4.4
	5.2	--	4.8	4.4

* Italian did not have enough male students in each cell.

TABLE III-F

SPELLING - ACHIEVEMENT

GRADE 3 - MALES

SOURCE	SUM OF SQUARES	DEGREES OF FREEDOM	VARIANCE	F
INTELLIGENCE	0.62	2	0.31	0.94 (N.S.)
LANGUAGE	7.19	2	3.59	10.88 (.01)
INTERACTION	0.94	4	0.24	0.72 (N.S.)
WITHIN	23.83	72	0.33	
TOTAL	32.58	80		

Table III-F indicates that for 3rd Grade Spelling - Achievement for the Males, I.Q. level was not a significant factor (.05). By inspecting the I.Q. means it was seen that there was no systematic variation. The Experimental language (vs. Control) group source showed a significance at the (.01) level. No significant interaction (.05) was found between Intelligence and the Experimental language (vs. Control) group. An inspection of the means in Table III-F-1 revealed that the overall mean scores of the Experimental groups were higher than that of the Control group. Of the Experimental group French had the highest mean and Spanish the lowest mean score. A critical ratio was run between the overall mean of the language groups and the Control group mean and found to be Non-Significant (.05).

TABLE III-F-1

MEAN SCORE BY GROUP

I.Q. INTERVAL	FRENCH	*ITALIAN	SPANISH	CONTROL
92 to 115	5.6	--	5.0	4.7
116 to 125	5.5	--	5.3	5.1
126 to 168	5.6	--	5.3	4.7
	5.6	--	5.2	4.8

* Italian did not have enough male students in each cell.

TABLE III-G

READING VOCABULARY - ACHIEVEMENT

GRADE 3 - FEMALES

SOURCE	SUM OF SQUARES	DEGREES OF FREEDOM	VARIANCE	F
INTELLIGENCE	7.07	2	3.53	10.09 (.01)
LANGUAGE	3.09	3	1.03	2.94 (N.S.)
INTERACTION	1.01	6	0.17	0.48 (N.S.)
WITHIN	50.08	144	0.35	
TOTAL	61.25	155		

Table III-G indicates that for 3rd Grade Reading Vocabulary - Achievement for the Females, I.Q. level was a significant factor (.01). By inspecting the I.Q. means it was seen that the higher I.Q. children had higher Reading Vocabulary scores. The Experimental language (vs. Control) group source showed a Non-Significance at the (.05) level. No significant interaction (.05) was found between Intelligence and the Experimental language (vs. Control) group. An inspection of the means in Table III-G-1 revealed that overall mean scores of the Experimental groups were higher than that of the Control group. Of the Experimental group French had the highest mean and Spanish the lowest mean score. A critical ratio was run between the overall mean of the language groups and the Control group mean and found to be Non-Significant (.05).

TABLE III-G-1

MEAN SCORE BY GROUP

I.Q. INTERVAL	FRENCH	ITALIAN	SPANISH	CONTROL
92 to 115	5.4	4.8	5.3	4.9
116 to 125	5.7	5.5	5.5	5.1
126 to 168	5.8	5.8	5.6	5.6
	5.6	5.5	5.4	5.2

TABLE III- H

READING COMPREHENSION - ACHIEVEMENT

GRADE 3 - FEMALES

SOURCE	SUM OF SQUARES	DEGREES OF FREEDOM	VARIANCE	F
INTELLIGENCE	6.13	2	3.06	8.27 (.01)
LANGUAGE	5.28	3	1.76	4.75 (.01)
INTERACTION	7.45	6	1.24	3.35 (.05)
WITHIN	53.88	144	0.37	
TOTAL	72.74	155		

Table III-H indicates that for 3rd Grade Reading Comprehension - Achievement for the Females, I.Q. level was a significant factor (.01). By inspecting the I.Q. means it was seen that the higher I.Q. children had higher Reading Comprehension scores. The Experimental language (vs. Control) group source showed a significance at the (.01) level. A significant interaction (.05) was found between Intelligence and the Experimental language (vs. Control) group. An inspection of the means in Table III-H-1 revealed that the overall mean scores of the Experimental groups were higher than that of the Control group. Of the Experimental group French and Italian had the same high mean and Spanish the lowest mean score. A critical ratio was run between the overall mean of the language groups and the Control group mean and found to be Non-Significant (.05).

TABLE III-H-1

MEAN SCORE BY GROUP

I.Q. INTERVAL	FRENCH	ITALIAN	SPANISH	CONTROL
92 to 115	5.5	5.7	5.3	4.7
116 to 125	5.8	5.5	5.5	5.1
126 to 168	5.7	6.0	5.6	6.0
	5.7	5.7	5.5	5.3

TABLE III-1

ARITHMETIC REASONING - ACHIEVEMENT

GRADE 3 - FEMALES

SOURCE	SUM OF SQUARES	DEGREES OF FREEDOM	VARIANCE	F
INTELLIGENCE	7.70	2	3.85	13.75 (.01)
LANGUAGE	2.89	3	0.96	3.43 (.05)
INTERACTION	3.15	6	5.25	18.75 (.01)
WITHIN	40.80	144	0.28	
TOTAL	54.54	155		

Table III-I indicates that for 3rd Grade Arithmetic Reasoning - Achievement for the Females, I.Q. level was a significant factor (.01). By inspecting the I.Q. means it was seen that the higher I.Q. children had higher Arithmetic Reasoning scores. The Experimental language (vs. Control) group source showed a significance at the (.05) level. A significant interaction (.01) was found between Intelligence and the Experimental language (vs. Control) group. An inspection of the means in Table III-I-1 revealed that the overall mean scores of the Experimental groups were higher than those of the Control group. Of the Experimental group Italian and Spanish had the same high mean and French the lowest mean score. A critical ratio was run between the overall mean of the language groups and the Control group mean and found to be Non-Significant (.05).

TABLE III-I-1

MEAN SCORE BY GROUP

I.Q. INTERVAL	FRENCH	ITALIAN	SPANISH	CONTROL
92 to 115	5.0	5.0	5.2	4.5
116 to 125	5.3	4.7	5.3	4.9
126 to 168	5.3	5.6	5.5	5.6
	5.2	5.3	5.3	5.0

TABLE III-J

ARITHMETIC FUNDAMENTAL - ACHIEVEMENT

GRADE 3 - FEMALES

SOURCE	SUM OF SQUARES	DEGREES OF FREEDOM	VARIANCE	F
INTELLIGENCE	2.97	2	1.48	13.45 (.01)
LANGUAGE	6.86	3	2.29	20.81 (.01)
INTERACTION	32.55	6	5.43	49.36 (.01)
WITHIN	15.92	144	0.11	
TOTAL	58.30	155		

Table III-J indicates that for 3rd Grade Arithmetic Fundamental - Achievement for the Females, I.Q. level was a significant factor (.01). By inspecting the I.Q. means it was seen that the higher I.Q. children had higher Arithmetic Fundamental scores. The Experimental language (vs. Control) group source showed a significance at the (.01) level. A significant interaction (.01) was found between Intelligence and the Experimental language (vs.Control) group. An inspection of the means. in Table III-J-1 revealed that the overall mean scores of the Experimental groups were higher than that of the Control group. Of the Experimental group Italian and Spanish had the same high mean and French the lowest mean score. A critical ratio was run between the overall mean of the language groups and the Control group mean and found to be Non-Significant (.05).

TABLE III-J-1

MEAN SCORE BY GROUP

I.Q. INTERVAL	FRENCH	ITALIAN	SPANISH	CONTROL
92 to 115	5.2	4.9	5.2	4.6
116 to 125	5.5	5.2	5.2	4.5
126 to 168	5.2	5.3	5.2	5.1
	5.4	5.2	5.2	4.7

TABLE III-K

MECHANICS OF ENGLISH - ACHIEVEMENT

GRADE 3 - FEMALES

SOURCE	SUM OF SQUARES	DEGREES OF FREEDOM	VARIANCE	F
INTELLIGENCE	15.83	2	7.91	10.54 (.01)
LANGUAGE	8.21	3	2.73	3.62 (.05)
INTERACTION	1.09	6	0.18	0.24 (N.S.)
WITHIN	108.38	144	0.75	
TOTAL	133.51	155		

Table III-K indicates that for 3rd Grade Mechanics of English - Achievement for the Females, I.Q. level was a significant factor (.01). By inspecting the I.Q. means it was seen that the higher I.Q. children had higher Mechanics of English scores. The Experimental language (vs. Control) group source showed a significance at the (.05) level. No significant interaction (.05) was found between Intelligence and the Experimental language (vs. Control) group. An inspection of the means in Table III-K-1 revealed that the overall means scores of the Experimental groups were higher than that of the Control group. Of the Experimental group Spanish had the highest mean and French and Italian had the same low mean score. A critical ratio was run between the overall mean of the language groups and the Control group mean and found to be Non-Significant (.05).

TABLE III-K-1

MEAN SCORE BY GROUP

I.Q. INTERVAL	FRENCH	ITALIAN	SPANISH	CONTROL
92 to 115	5.0	5.1	4.6	4.5
116 to 125	5.5	5.2	4.8	4.9
126 to 168	5.8	5.7	5.4	5.4
	5.4	5.4	4.9	4.9

TABLE III-L
SPELLING - ACHIEVEMENT
GRADE 3 - FEMALES

SOURCE	SUM OF SQUARES	DEGREES OF FREEDOM	VARIANCE	F
INTELLIGENCE	9.21	2	4.60	8.67 (.01)
LANGUAGE	2.31	3	0.77	1.45 (N.S.)
INTERACTION	4.67	6	0.78	1.47 (N.S.)
WITHIN	76.54	144	0.53	
TOTAL	92.73	155		

Table III-L indicates that for 3rd Grade Spelling - Achievement for the Females, I.Q. level was a significant factor (.01). By inspecting the I.Q. means it was seen that the higher I.Q. children had higher Spelling scores. The Experimental language (vs. Control) group source showed a Non-Significance at the (.05) level. No significant interaction (.05) was found between Intelligence and the Experimental language (vs. Control) group. An inspection of the means in Table III-L-1 revealed that the overall mean scores of the Experimental groups were higher than that of the Control group. Of the Experimental group French had the highest mean and Spanish the lowest mean score. A critical ratio was run between the overall mean of the language groups and the Control group mean and found to be Non-Significant (.05).

TABLE III-L-1
MEAN SCORE BY GROUP

I.Q. INTERVAL	FRENCH	ITALIAN	SPANISH	CONTROL
92 to 115	5.2	5.2	5.1	4.9
116 to 125	5.7	5.3	5.2	4.9
126 to 168	5.6	5.7	5.5	5.9
	5.5	5.4	5.3	5.2

TABLE III-M
READING - TEACHER GRADES
GRADE 3 - MALES

SOURCE	SUM SQUARES	DEGREES OF FREEDOM	VARIANCE	F
INTELLIGENCE	330	2	165.0	7.93 (.01)
LANGUAGE	546	2	273.0	13.12 (.01)
INTERACTION	210	4	52.5	2.50 (N.S.)
WITHIN	1500	72	20.8	
TOTAL	2586	80		

Table III-M indicates that for 3rd Grade Reading - Teacher Grades for the Males, I.Q. level was a significant factor (.01). By inspecting the I.Q. means it was seen that the higher I.Q. children had higher Reading scores. The Experimental language (vs. Control) group source showed a significance at the (.01) level. No significant interaction (.05) was found between Intelligence and the Experimental language (vs. Control) group. An inspection of the means in Table III-M-1 revealed that the overall mean scores of the Experimental groups were higher than that of the Control group. Of the Experimental group French had the highest mean and Spanish the lowest mean score. A critical ratio was run between the overall mean of the language groups and the Control group mean and found to be Non-Significant (.05).

TABLE III-M-1
MEAN SCORE BY GROUP

I.Q. INTERVAL	FRENCH	*ITALIAN	SPANISH	CONTROL
92 to 115	92.6	--	88.9	81.6
116 to 125	93.2	--	92.6	88.3
126 to 168	92.9	--	94.2	91.3
	92.9	--	92.2	87.0

* Italian did not have enough male students in each cell.

TABLE III-N
LANGUAGE ARTS - TEACHER GRADES
GRADE 3 - MALES

SOURCE	SUM OF SQUARES	DEGREES OF FREEDOM	VARIANCE	F
INTELLIGENCE	158	2	79.0	2.44 (N.S.)
LANGUAGE	854	2	427.0	13.21 (.01)
INTERACTION	14	4	3.5	0.11 (N.S.)
WITHIN	2329	72	32.3	
TOTAL	3355	80		

Table III-N indicates that for 3rd Grade Language Arts - Teacher Grades for the Males, I.Q. level was not a significant factor (.05). By inspecting the I.Q. means it was seen that the higher I.Q. children had higher Language Arts scores. The Experimental language (vs. Control) group source showed a significance at the (.01) level. No significant interaction (.05) was found between Intelligence and the Experimental language (vs. Control) group. An inspection of the means in Table III-N-1 revealed that the overall mean scores of the Experimental groups were higher than that of the Control group. Of the Experimental group Spanish had the highest mean and French the lowest mean score. A critical ratio was run between the overall mean of the language groups and the Control group mean and found to be Non- Signficant (.05).

TABLE III-M-1
MEAN SCORE BY GROUP

I.Q. INTERVAL	FRENCH	*ITALIAN	SPANISH	CONTROL
92 to 115	89.6	--	91.4	82.2
116 to 125	90.9	--	90.0	82.6
126 to 168	89.6	--	92.6	87.8
	90.8	--	91.3	84.2

* Italian did not have enough male students in each cell.

TABLE III-O

ARITHMETIC - TEACHER GRADES

GRADE 3 - MALES

SOURCE	SUM OF SQUARES	DEGREES OF FREEDOM	VARIANCE	F
INTELLIGENCE	203	2	101.5	2.60 (N.S.)
LANGUAGE	229	2	114.5	2.93 (N.S.)
INTERACTION	318	4	79.5	2.04 (N.S.)
WITHIN	2812	72	39.0	
TOTAL	3562	80		

Table III-O indicates that for 3rd Grade Arithmetic - Teacher Grades for the Males, I.Q. level was not a significant factor (.05). By inspecting the I.Q. means it was seen that the higher I.Q. children had slightly higher Arithmetic scores. The Experimental language (vs. Control) group source showed a Non-Significance at the (.05) level. No significant interaction (.05) was found between Intelligence and the Experimental language (vs. Control) group. An inspection of the means in Table III-O-1 revealed that the overall mean scores of the Experimental groups were higher than that of the Control group. Of the Experimental group French had the highest mean and Spanish the lowest mean score. A critical ratio was run between the overall mean of the language groups and the Control group mean and found to be Non-Significant (.05).

TABLE III-O-1

MEAN SCORE BY GROUP

I.Q. INTERVAL	FRENCH	*ITALIAN	SPANISH	CONTROL
92 to 115	88.9	--	87.3	86.0
116 to 125	92.1	--	88.9	81.8
126 to 168	90.2	--	91.0	91.3
	90.4	--	89.0	86.4

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* Italian did not have enough male students in each cell.

TABLE III-P

CITIZENSHIP EDUCATION - TEACHER GRADES

GRADE 3 - MALES

SOURCE	SUM OF SQUARES	DEGREES OF FREEDOM	VARIANCE	F
INTELLIGENCE	208	2	104.0	2.71 (N.S.)
LANGUAGE	1046	2	523.0	13.58 (.01)
INTERACTION	328	4	82.0	2.13 (N.S.)
WITHIN	2774	72	38.5	
TOTAL	4356	80		

Table III-P indicates that for 3rd Grade Citizenship Education - Teacher Grades for the Males, I.Q. level was not a significant factor (.05). By inspecting the I.Q. means it was seen that the higher I.Q. children had higher Citizenship Education scores. The Experimental language (vs. Control) group source showed a significance at the (.01) level. No significant interaction (.05) was found between Intelligence and the Experimental language (vs. Control) group. An inspection of the means in Table III-P-1 revealed that the overall mean scores of the Experimental groups were higher than that of the Control group. Of the Experimental group French had the highest mean and Spanish the lowest mean score. A critical ratio was run between the overall mean of the language groups and Control group mean and found to be Non-Significant (.05).

TABLE III-P

MEAN SCORE BY GROUP

I.Q INTERVAL	FRENCH	*ITALIAN	SPANISH	CONTROL
92 to 115	91.2	--	86.7	81.1
116 to 125	92.9	--	90.4	80.2
126 to 168	92.9	--	87.8	89.3
	92.3	--	88.5	83.6

* Italian did not have enough male students in each cell.

TABLE III-Q

SCIENCE - TEACHER GRADES

GRADE 3 - MALES

SOURCE	SUM OF SQUARES	DEGREES OF FREEDOM	VARIANCE	F
INTELLIGENCE	233	2	116.5	4.09 (.05)
LANGUAGE	659	2	329.5	11.56 (.01)
INTERACTION	266	4	66.5	2.33 (N.S.)
WITHIN	2055	72	28.5	
TOTAL	3213	80		

Table III-Q indicates that for 3rd Grade Science - Teacher Grades for the Males, I.Q. level was a significant factor (.05). By inspecting the IQ. means it was seen that the higher I.Q. children had higher Science scores. The Experimental language (vs. Control) group source showed a signficance at the (.01) level. No significant interaction (.05) was found between Intelligence and the Experimental language (vs. Control) group. An inspection of the means in Table III-Q-1 revealed that the overall mean scores of the Experimental groups were higher than that of the Control group. Of the Experimental group French had the highest mean and Spanish the lowest mean score. A critical ratio was run between the overall mean of the language groups and the Control group mean and found to be Non-Significant (.05).

TABLE III-Q-1

MEAN SCORE BY GROUP

I.Q. INTERVAL	FRENCH	*ITALIAN	SPANISH	CONTROL
92 to 115	90.1	--	87.8	81.1
116 to 125	92.2	--	90.0	83.0
126 to 168	92.6	--	87.8	90.4
	91.8	--	88.8	84.8

* Italian did not have enough male students in each cell.

TABLE III-R

READING - TEACHER GRADES

GRADE 3 - FEMALES

SOURCE	SUM OF SQUARES	DEGREES OF FREEDOM	VARIANCE	F
INTELLIGENCE	164	2	82.0	4.45 (.05)
LANGUAGE	376	3	125.3	6.81 (.01)
INTERACTION	92	6	15.2	.81 (N.S.)
WITHIN	2877	156	18.4	
TOTAL	3509	167		

Table III-R indicates that for 3rd Grade Reading - Teacher Grades for the Females I.Q. level was a significant factor (.05). By inspecting the I.Q. means it was seen that the higher I.Q. children had higher Reading scores. The Experimental language (vs. Control) group source showed a significance at the (.05) level. No significant interaction (.05) was found between Intelligence and the Experimental language (vs. Control) group. An inspection of the means in Table III-R-1 revealed that the overall mean scores of the Experimental groups were higher than that of the Control group. Of the Experimental group French had the highest mean and Spanish the lowest mean score. A critical ratio was run between the overall mean of the language groups and the Control group mean and found to be Non-Significant (.05).

TABLE III-R-1

MEAN SCORE BY GROUP

I.Q. INTERVAL	FRENCH	ITALIAN	SPANISH	CONTROL
92 to 115	92.6	92.7	92.2	87.3
116 to 125	93.0	91.5	96.7	88.5
126 to 168	93.3	94.1	93.2	87.3
	93.0	92.6	92.3	89.3

TABLE III-S

LANGUAGE ARTS . TEACHER GRADES

GRADE 3 - FEMALES

SOURCE	SUM OF SQUARES	DEGREES OF FREEDOM	VARIANCE	F
INTELLIGENCE	113	2	56.5	2.66 (N.S.)
LANGUAGE	232	3	97.3	3.65 (.05)
INTERACTION	162	6	27.0	1.27 (N.S.)
WITHIN	3314	156	21.2	
TOTAL	3821	167		

Table III-S indicates that for 3rd grade Language Arts - Teacher Grades for the females, IQ. level was not a significant factor (.01). By inspecting the I.Q. means it was seen that the higher I.Q. children had slightly higher Language Arts scores. The Experimental language (vs. Control) group source showed Significance (.05). No significant interaction (.05) was found between Intelligence and the Experimental language (vs. Control) group. An inspection of the means in Table III-S-1 revealed that the overall mean scores of the Experimental groups were higher than that of the Control group. Of the Experimental group Spanish had the highest mean and Italian the lowest mean score. A critical ratio was run between the overall mean of the language groups and the Control group mean and found to be Non-Significant (.05).

TABLE III-S-1

MEAN SCORE BY GROUP

I.Q. INTERVAL	FRENCH	ITALIAN	SPANISH	CONTROL
92 to 115	90.0	92.4	90.9	86.1
116 to 125	91.6	90.2	91.8	90.4
126 to 168	91.9	91.9	93.2	90.2
	91.2	91.5	92.0	88.8

TABLE III-T

ARITHMETIC - TEACHER GRADES

GRADE 3 - FEMALES

SOURCE	SUM OF SQUARES	DEGREES OF FREEDOM	VARIANCE	F
INTELLIGENCE	138	2	69.0	3.40 (.05)
LANGUAGE	153	3	51.0	2.51 (N.S.)
INTERACTION	210	6	35.0	1.72 (N.S.)
WITHIN	3173	153	20.3	
TOTAL	3674	167		

Table III-T indicates that for 3rd Grade Arithmetic - Teacher Grades for the Females, I.Q. level was a significant factor (.01). By inspecting the I.Q. means it was seen that the higher I.Q. children had higher Arithmetic scores. The Experimental language (vs. Control) group source showed Non-Significance (.05). No significant interaction (.05) was found between Intelligence and the Experimental language (vs. Control) group. An inspection of the means in Table III-T-1 revealed that the overall mean scores of the Experimental group were higher than that of the Control group. Of the Experimental group, Spanish had the highest mean with Italian the lowest mean score. A critical ratio was run between the overall mean of the language groups and the Control group mean and found to be Non-Significant (.05).

TABLE III-T-1

MEAN SCORE BY GROUP

I.Q. INTERVAL	FRENCH	ITALIAN	SPANISH	CONTROL
92 to 115	88.4	87.9	88.7	83.8
116 to 125	90.6	82.0	89.5	87.7
126 to 168	88.6	89.3	90.3	89.7
	89.2	88.2	89.5	87.1

TABLE III-U

CITIZENSHIP EDUCATION - TEACHER GRADES

GRADE 3 - FEMALES

SOURCE	SUM OF SQUARES	DEGREES OF FREEDOM	VARIANCE	F
INTELLIGENCE	61	2	30.1	0.88 (N.S.)
LANGUAGE	456	3	152.0	4.44 (.05)
INTERACTION	65	6	10.8	0.32 (N.S.)
WITHIN	5312	156	34.0	
TOTAL	5894	167		

Table III-U indicates that for 3rd Grade Citizenship Education - Teacher Grades for the females, I.Q. level was a significant factor (.01). By inspecting the I.Q. means it was seen that the higher I.Q. children had slightly higher Citizenship Education scores. The Experimental language (vs. Control) group source showed a significance at the (.05) level. No significant interaction (.05) was found between Intelligence and the Experimental language (vs. Control) group. An inspection of the means in Table III-U-1 revealed that the overall mean scores of the French and Spanish Experimental groups were higher with Italian being slightly lower than that of the Control group. A critical ratio was run between the overall mean of the language groups and the Control group mean and found to be Non-Significant (.05).

TABLE III-U-1

MEAN SCORE BY GROUP

I.Q. INTERVAL	FRENCH	ITALIAN	SPANISH	CONTROL
92 to 115	90.4	90.1	90.0	85.4
116 to 125	90.7	88.1	88.0	85.9
126 to 168	90.7	90.4	89.6	87.8
	90.9	89.6	89.2	86.4

TABLE III-V
SCIENCE - TEACHER GRADES
GRADE 3 - FEMALES

SOURCE	SUM OF SQUARES	DEGREES OF FREEDOM	VARIANCE	F
INTELLIGENCE	85	2	42.5	1.23 (N.S.)
LANGUAGE	399	3	133.0	3.87 (.05)
INTERACTION	80	6	13.3	.39 (N.S.)
WITHIN	5376	156	34.4	
TOTAL	5940	167		

Table III-V indicates that for 3rd Grade Science - Teacher Grades for the Females, I.Q. level was not a significant factor (.05). By inspecting the I.Q. means it was seen that I.Q. vs. Science did not have a specific directional effect. The Experimental language (vs. Control) group source showed a significance at the (.05) level. No significant interaction (.05) was found between Intelligence and the Experimental language (vs. Control) group. An inspection of the means in Table III-V-1 revealed that the scores of the Experimental groups were higher than that of the Control group. Of the Experimental group Spanish had the highest mean and Italian the lowest mean score. A critical ratio was run between the overall mean of the language groups and the Control group mean and found to be Non-Significant (.05).

TABLE III-V-1
MEAN SCORE BY GROUP

I.Q. INTERVAL	FRENCH	ITALIAN	SPANISH	CONTROL
92 to 115	88.6	90.1	90.7	84.6
116 to 125	88.8	86.8	88.2	84.9
126 to 168	89.6	89.2	89.5	87.0
	89.1	88.7	89.3	85.5

APPENDIX B

THE TOTAL NUMBER OF CHILDREN WHO WERE DROPPED FROM THE FOREIGN LANGUAGE PROGRAM WAS 178; 94 MALES, 84 FEMALES. (SEE TABLE D-1).

TABLE D - 1

STUDENTS DROPPED FROM FOREIGN LANGUAGE BY LANGUAGE

	MALES		FEMALES		TOTAL	
	#	%	#	%	#	%
FRENCH	29	30.9	27	32.1	56	31.6
GERMAN	3	3.2	2	2.4	5	2.8
ITALIAN	16	17.0	12	14.3	28	15.7
SPANISH	46	48.9	43	51.2	89	49.9
TOTAL	94	100.0	84	100.0	178	100.0

OF THE MALES 29 WERE DROPPED FROM THE FRENCH PROGRAM, 3 FROM THE GERMAN, 16 FROM ITALIAN AND 46 FROM SPANISH. OF THE FEMALES, 27 WERE DROPPED FROM FRENCH, 2 WERE DROPPED FROM GERMAN, 12 FROM ITALIAN AND 43 FROM SPANISH. THE SMALL NUMBER OF STUDENTS DROPPED FROM GERMAN IS CONSISTANT WITH THE SMALL NUMBER OF STUDENTS TAKING GERMAN.

OF THE STUDENTS DROPPED IN FOREIGN LANGUAGE THOSE DROPPED WHILE IN THE SECOND GRADE (SEE TABLE D-II) WERE 38% MALES; WERE 32% FEMALES.

TABLE D - II

STUDENTS DROPPED FROM FOREIGN LANGUAGE BY GRADE

	MALES		FEMALES		TOTAL	
	#	%	#	%	#	%
GRADE 1	19	20.2	19	22.6	38	21.3
GRADE 2	36	38.3	27	32.1	63	35.4
GRADE 3	17	18.1	19	22.6	36	20.2
GRADE 4	9	9.6	10	11.9	19	10.7
GRADE 5	11	11.7	6	7.1	17	9.5
GRADE 6	2	2.1	3	3.6	5	2.8
TOTAL	94	100.0	84	99.9	178	99.9

FOR THE REMAINING GRADES, THE PERCENTAGE OF STUDENTS WHO DROPPED WERE: FIRST GRADE MALES 20%, FEMALES 23%; THIRD GRADE MALES 18%, FEMALES 23%; FOURTH GRADE MALES 9%, FEMALES 11%; FIFTH GRADE MALES 12%, FEMALES 7%; SIXTH GRADE MALES 2%, FEMALES 4%. THESE PERCENTAGES INDICATE THAT LANGUAGE STUDY IN THE EARLY GRADES IS NOT MORE DIFFICULT FOR BOYS THAN FOR GIRLS.

IN CONSIDERING THE CAUSES FOR DROPOUTS, (SEE TABLE D-III) 72% OF THE STUDENTS WERE DROPPED FROM FOREIGN LANGUAGE STUDY BECAUSE OF FOREIGN LANGUAGE TEACHER RECOMMENDATION; THIS WAS USUALLY DUE TO POOR PERFORMANCE IN THE FOREIGN LANGUAGE.

TABLE D - III

REASONS FOR FOREIGN LANGUAGE DROP OUT

	MALES		FEMALES		TOTAL	
	#	%	#	%	#	%
PARENTAL REQUEST	4	4.2	2	2.4	6	3.4
HOMEROOM TEACHER	13	13.8	10	11.9	23	12.9
LANGUAGE TEACHER	68	72.3	61	72.6	129	72.5
LANGUAGE TEACHER & PARENTAL REQUEST	3	3.2	-	-	3	1.7
HOMEROOM TEACHER & LANGUAGE TEACHER	5	5.3	7	8.3	12	6.7
OTHER	1	1.1	4	4.8	5	2.8
TOTAL	94	99.9	84	100.0	178	100.0

THE STUDENTS CLASSROOM TEACHERS REQUESTED THE DROP IN 14% OF THE CASES FOR THE MALES, AND 11% OF THE CASES FOR THE FEMALES. THIS RECOMMENDATION WAS MADE WHEN THE TEACHER FELT THAT PERFORMANCE IN OTHER SUBJECT AREAS WAS LOWERED. IN THE REMAINING CASES, THE STUDENTS WERE DROPPED BECAUSE OF A JOINT DECISION OF CLASSROOM AND LANGUAGE TEACHER (MALES 5%, FEMALES 8%), PARENTAL REQUEST (MALES 4%, FEMALES 2%) AND OTHER (MALES 1%, FEMALES 5%).

APPENDIX C

SAMPLE

THE STUDENTS WERE FIRST CLASSIFIED ACCORDING TO TOTAL I.Q. SCORE AS OBTAINED FROM THE STUDENTS IN THE 1ST GRADE. ON THE BASIS OF AN I.Q. DISTRIBUTION OF SCORES THE I.Q. SCORES WERE SPLIT INTO A LOWER, MIDDLE AND UPPER INTERVALS. THE INTERVALS WERE AS FOLLOWS:

92 TO 115
116 TO 125
126 TO 168

THE SAMPLE SIZE FOR BOTH EXPERIMENTAL AND CONTROL GROUPS IN ALL CLASSIFICATIONS VARIED IN SIZE DUE TO THE NUMBER OF STUDENTS TAKING COURSES, AVAILABILITY OF RECORDS AS WELL AS THE CRITERIA CONDITIONS FOR STUDENTS INCLUDED IN THE CONTROL GROUP.

NUMBER OF STUDENTS
BEFORE CELL EQUALIZATION

SECOND GRADE - ACHIEVEMENT*

CONTROL GROUP

TABLE A - II - 1

	MALES	FEMALES	TOTAL
UPPER	12	9	21
MIDDLE	20	13	33
LOWER	19	11	30
TOTAL	51	23	84

EXPERIMENTAL GROUP - FRENCH

TABLE A - II - 2

	MALES	FEMALES	TOTAL
UPPER	33	59	92
MIDDLE	13	45	58
LOWER	10	15	25
TOTAL	56	119	175

EXPERIMENTAL GROUP - ITALIAN

TABLE A - II - 3

	MALES**	FEMALES	TOTAL
UPPER	30	32	62
MIDDLE	7	22	29
LOWER	2	20	22
TOTAL	39	74	113

EXPERIMENTAL GROUP - SPANISH

TABLE A - II - 4

	MALES	FEMALES	TOTAL
UPPER	41	44	85
MIDDLE	27	45	72
LOWER	28	50	78
TOTAL	96	139	235

* Records were complete for all students, therefore total student count will not always be the same.

** Italian did not have enough male students in each cell.

NUMBER OF STUDENTS
BEFORE CELL EQUALIZATION
SECOND GRADE - TEACHER GRADES*

CONTROL GROUP

TABLE A - II - 5

	MALES	FEMALES	TOTAL
UPPER	13	13	26
MIDDLE	13	15	28
LOWER	13	13	26
TOTAL	39	41	80

EXPERIMENTAL GROUP - FRENCH

TABLE A - II - 6

	MALES	FEMALES	TOTAL
UPPER	38	62	100
MIDDLE	14	45	59
LOWER	10	16	26
TOTAL	62	123	185

EXPERIMENTAL GROUP - ITALIAN

TABLE A - II - 7

	MALES**	FEMALES	TOTAL
UPPER	30	35	65
MIDDLE	7	24	31
LOWER	2	20	22
TOTAL	39	79	118

EXPERIMENTAL GROUP - SPANISH

TABLE A - II - 8

	MALES	FEMALES	TOTAL
UPPER	45	50	95
MIDDLE	28	49	77
LOWER	28	52	80
TOTAL	101	151	252

* Records were complete for all students, therefore total student count will not always be the same.

** Italian did not have enough male students in each cell.

NUMBER OF STUDENTS
BEFORE CELL EQUALIZATION

THIRD GRADE - ACHIEVEMENT *

CONTROL GROUP

TABLE A - III - 1

	MALES	FEMALES	TOTAL
UPPER	25	22	47
MIDDLE	29	22	51
LOWER	27	24	51
TOTAL	81	68	149

EXPERIMENTAL GROUP - FRENCH

TABLE A - III - 2

	MALES	FEMALES	TOTAL
UPPER	24	44	68
MIDDLE	9	38	47
LOWER	10	13	23
TOTAL	43	95	138

EXPERIMENTAL GROUP - ITALIAN

TABLE A - III - 3

	MALES**	FEMALES	TOTAL
UPPER	19	26	45
MIDDLE	4	15	19
LOWER	2	18	20
TOTAL	25	59	184

EXPERIMENTAL GROUP - SPANISH

TABLE A - III - 4

	MALES	FEMALES	TOTAL
UPPER	30	29	59
MIDDLE	21	36	57
LOWER	25	42	67
TOTAL	76	107	183

* Records were complete for all students, therefore total student count will not always be the same.

** Italiandid not have enough male students in each cell.

NUMBER OF STUDENTS
BEFORE CELL EQUALIZATION

THIRD GRADE - TEACHER GRADES*

CONTROL GROUP

TABLE A - III - 5

	MALES	FEMALES	TOTAL
UPPER	26	21	47
MIDDLE	22	23	45
LOWER	27	24	51
TOTAL	75	68	133

EXPERIMENTAL GROUP - FRENCH

TABLE A - III - 6

	MALES	FEMALES	TOTAL
UPPER	26	44	70
MIDDLE	9	38	47
LOWER	10	14	24
TOTAL	45	96	141

EXPERIMENTAL GROUP - ITALIAN

TABLE A - III - 7

	MALES**	FEMALES	TOTAL
UPPER	19	26	45
MIDDLE	4	16	20
LOWER	2	19	21
TOTAL	25	61	86

EXPERIMENTAL GROUP - SPANISH

TABLE A - III - 8

	MALES	FEMALES	TOTAL
UPPER	33	36	69
MIDDLE	23	38	61
LOWER	26	45	71
TOTAL	82	119	201

* Records were complete for all students, therefore total student count will not always be the same.

** Italian did not have enough male students in each cell.

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